# ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU

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**BY**

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**LUDHIANA,**
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*Dedicated*

*to*

*my Family*

*&*

*Teachers*

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**Dr. Mehak Chawla**

# LIST OF ABBREVIATIONS

ADEM- Acute disseminated encephalomyelitis

BiPAP- Bilevel positive airway pressure

CFT – Capillary refill time

CNS- Central nervous system

CP- Central pulses

CPAP- Continuous positive airway pressure

CVS- Cardiovascular system

FiO2- Fractional concentration of oxygen in inspired air

GIT – Gastrointestinal tract

HFNC- High flow nasal cannula

HR – Heart rate

IBP – Invasive blood pressure

ICU - Intensive care unit

MAP- Mean arterial pressure

NIBP- Non-invasive blood pressure

PaO2- Partial pressure of oxygen

PCo2- Partial pressure of carbon-dioxide

PP- Peripheral pulses

PRISM - Pediatric Risk of Mortality

pSOFA - Pediatric sequential organ failure assessment score

RR – Respiratory rate

SIRS- Systemic inflammatory response system

SOFA- Sequential organ failure assessment score

SpO2 – Oxygen saturation in blood

# ABSTRACT

**Introduction:** The Sequential Organ Failure Assessment (SOFA) score numerically quantifies the number and severity of failed organs in sepsis.

**Aims & Objectives:** To assess the utility of SOFA Score as a predictor of outcome in children admitted to PICU with a clinical construct of sepsis.

**Material and methods:** A prospective observational study over one year, enrolling children 1 month to 18 years admitted with fever. SOFA score was calculated at 24 hours and 72 hours and correlated with mortality and morbidity in ICU.

**Results:** There were total 653 admissions to PICU during the study period of 1 year (1 January 2019 to 31 December 2019) out of which 150 patients met inclusion criteria. The mean age was 6.82 ± 5.43 years. Male: female ratio was 1.5:1. The mortality rate was 21.3% and the mean duration of ICU stay was 6.81 days. Mortality was not related to age, gender or underlying etiology. SOFA score cut-off of 10 had high correlation with outcome. The total scores in non-survivors at 24 hours was 12.31± 3.22 and 15.41 ± 3.53 at 72 hours which were significantly higher than in survivors which were 7.98 ± 3.6 at 24 hours and 5.67 ± 3.91at 72 hours with a p value=0.000. Statistically significant relation was found between higher SOFA scores and requirement of ventilation and inotropes.

**Conclusion:** SOFA score is a simple and effective prognostic indicator for patient progress in ICU. It provides potentially valuable information on in-hospital mortality as well as morbidity. SOFA score at 72 hours has more significant positive relation to morbidity as well as mortality. SOFA score is an acceptable method for risk stratification and prognosis of children with suspected infection in PICU.



**Keywords:** Sepsis, SOFA score, Outcome prediction, PICU

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# INTRODUCTION

Sepsis and septic shock remain a major cause of morbidity and mortality worldwide, despite recent advances in vaccines, antibiotics and intensive care. Sepsis accounts for 60-80% of annual child mortality causing 6 million neonatal and childhood deaths a year.[1] A recent meta-analysis estimated the annual global incidence of sepsis as 31.5 million cases, with 19.4 million cases of severe sepsis, resulting in 5.3 million deaths. Sepsis is a syndrome of physiologic, pathologic and biochemical abnormalities induced by infection and has become a major public health concern.[2] Furthermore, there is increasing awareness that patients who survive sepsis often have long-term physical, psychological, and cognitive disabilities with significant health care and social implications.[3]

Accurate diagnostic criteria and consensus definitions therefore have an important role in intensive care medicine, providing tools for research, benchmarking, performance monitoring, and accreditation.[4] For the past two decades, sepsis has been defined as “systemic inflammatory response syndrome (SIRS) caused by infection” both for adults and children.[5-7] The 1991 consensus conference [8] developed definitions that attributed sepsis with a host’s systemic inflammatory response to infection. Sepsis complicated by organ dysfunction was termed severe sepsis, which could progress to septic shock, defined as “sepsis-induced hypotension persisting despite adequate fluid resuscitation.”

**Table 1: SIRS (Systemic Inflammatory Response Syndrome) criteria includes two or more of the following** :[9]

| | |
|---|---|
| Temperature | >38 F or <36 F |
| Heart Rate | >90/min |
| Respiratory Rate | >20/min or PaCO2 <32mmHg |
| White blood cells | >12000/mm3 or <4000/mm3 or >10% immature bands |

SIRS criteria encompasses two or more of the following clinical manifestations: Body temperature greater than 38F or less than 36F;

Tachycardia, manifested as heart rate greater than 90 beats per minute; Tachypnea, manifested by a respiratory rate greater than 20 breaths per minute, or hyperventilation, as indicated by an arterial PCO2 of less than 32mmHg; and an alteration in the white blood cell count, such as a count greater than 12000/$mm^3$, or less than 4000/$mm^3$, or the presence of more than 10% immature neutrophils.

Different stages of severity of sepsis have been described. Severe sepsis is defined as sepsis associated with organ dysfunction, hypoperfusion or hypotension, and septic shock is defined as hypotension persisting despite adequate fluid resuscitation, in the absence of any other cause of hypotension.[8]

Sepsis is a multifaceted host response to an infecting pathogen that may be significantly amplified by endogenous factors.[10,11] The original conceptualization of sepsis as infection with at least 2 of the 4 SIRS criteria focused solely on inflammatory excess. However, the validity of SIRS as a descriptor of sepsis pathobiology has been challenged as sepsis is now recognized to involve early activation of both pro- and anti-inflammatory responses [12] along with major modifications in non-immunologic pathways such as cardiovascular, neuronal, autonomic, hormonal, bioenergetic, metabolic, and coagulation [8,13,14] all of which have prognostic significance.

This definition has long been criticized for its too broad inclusion of milder conditions, such as influenza virus infection without any organ dysfunction. In fact, Churpek et al. revealed that nearly half of the adult patients admitted to the hospital wards fulfilled two or more SIRS criteria at least once during their ward stay [15], while Kaukonen et al. showed that about 12% of the adult ICU patients with some infection and at least one organ dysfunction were negative for the SIRS criteria but their mortality rate was still substantial. [16] A European study in 2006 showed that the definition of SIRS has a sensitivity of almost 100% but a specificity of 18% in the case of severe infection.[17] There is an overlap in the use of the terms ‘Severe sepsis’ and ‘Septic shock’ and these are sometimes used interchangeably to describe a

syndrome of infection associated with acute organ dysfunction.[10] This may explain the variations in incidence of sepsis in different studies.

Taking these issues into consideration, the European Society of Intensive Care Medicine and the Society of Critical Care Medicine convened a task force of 19 critical care, infectious disease, surgical, and pulmonary specialists in January 2014 and formulated new sepsis criteria, advocated as “Sepsis-3” in 2017, which redefined sepsis as infection complicated by one or more organ dysfunctions.

Sepsis is now defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.[9,18,19] This new definition has been based upon the current understanding of sepsis-induced changes in organ function, morphology, cell biology, biochemistry, immunology, and circulation ,that is collectively referred to as pathobiology.[20]

The 2001 Task force definitions described septic shock as a state of acute circulatory failure [6] but the 2017 Task force favoured a broader view to differentiate septic shock from cardiovascular dysfunction alone and to recognize the importance of cellular abnormalities and emphasised that septic shock should reflect a more severe illness with a much higher likelihood of death than sepsis alone.

The definition of the different stages of severity of sepsis is now simplified with the suppression of the ‘severe sepsis’ stage that becomes obsolete. So the new ‘sepsis’ is the old ‘severe sepsis’. This would facilitate the better interpretation of sepsis and prompt diagnosis which is a key element of prognosis.[21]

Septic shock is defined as a subset of sepsis in which underlying circulatory and cellular or metabolic abnormalities are substantial enough to increase the risk of mortality. Patients with septic shock can be identified with a clinical diagnosis of sepsis with persistent hypotension requiring inotropes to maintain MAP at least 65mmHg and a serum lactate level more than 2mmol/l (18mg/dl) despite adequate volume resuscitation.[9]

The SIRS criteria is based upon non-specific parameters such as pyrexia or neutrophilia that assist in the general diagnosis of infection

and indicate the likely anatomical source or the infecting organism. Therefore, SIRS only depicts an appropriate host response that is usually adaptive whereas sepsis involves organ dysfunction, indicating a more complex pathobiology than infection. The task force emphasis that sepsis is a life-threatening organ dysfunction which is consistent with the view that cellular defects underlie physiological and biochemical abnormalities within specific organ systems.

The severity of illness can be estimated by measuring how much apart the physiologic variables are from the normal range and objective quantification of these variables can directly reflect the risk of mortality. The prognostic scoring systems are used to assess the severity of illness, plan triage, determine treatment, clinical course and prognosticate outcome. These are also used as a tool for quality control measures and costs or benefit analysis.[22]

The various scoring systems that have been used to quantify abnormalities according to clinical findings, laboratory data, or therapeutic interventions are Acute Physiology and Chronic Health Evaluation II (APACHE II) in adults, Rapid Emergency Medicine Score (REMS), Sequential Organ Failure Assessment (SOFA), Multiple Organ Dysfunction Score (MODS), Predisposition, Infection, Response and Organ Dysfunction (PIRO), and Mortality in Emergency Department Sepsis (MEDS).

The scoring systems used for pediatric organ dysfunction quantification include PRISM III, PIM2, PEMOD, PELOD, TISS and SOFA scores.

PRISM (Pediatric Risk of Mortality) and PIM (Pediatric Index of Mortality) scores are commonly used scores used in the pediatric population.[23,24]

The PRISM score encompasses 14 variables namely systolic blood pressure, diastolic blood pressure, heart rate, respiratory rate, PaO2/FiO2 ratio (partial pressure of arterial oxygen/fraction of inspired oxygen ratio), PaCO2 (partial pressure of arterial carbon dioxide), Glasgow coma scale (GCS), pupillary reaction, PT (Prothrombin time) ratio (Test/ Control), total bilirubin, serum potassium, serum calcium, blood glucose and serum bicarbonate.

The PIM score can be calculated on the basis of eight variables that include elective admission (yes/no), premorbid clinical conditions, pupillary response, base excess in arterial blood, PaO2 and FiO2 at that time, systolic blood pressure and mechanical ventilation at any time during the first hour in PICU (yes/no).

The Sequential Organ Failure Assessment (SOFA) score was selected as the scoring system to quantify organ dysfunction in the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3).[16] The Sepsis-3 Task Force has validated the use of SOFA score in adult patients with suspected infection and found the SOFA system to be either comparable or superior to other scoring systems in determining in-hospital mortality.[16]

The SOFA scoring system was established in a consensus meeting of European Society of Intensive Care Medicine in 1994 and later revised in 1996. SOFA system is a six organ dysfunction score measuring multiple organ dysfunctions. Each organ is graded 0 (normal) to 4 (most abnormal) providing a daily total score of 0 - 24 points.[20,25-28]

The Task force recommended using a change in baseline of the total SOFA score of 2 points or more to represent organ dysfunction. The baseline SOFA score was assumed to be zero unless the patient was known to have pre-existing acute or chronic organ dysfunction before the onset of infection. Patients with a SOFA score of 2 or more had an overall mortality risk of approximately 10% in a general hospital population with presumed infection. Depending on a patient's baseline level of risk, a SOFA score of 2 or greater identified a 2- to 25-fold increased risk of mortality compared with patients with a SOFA score less than 2.[19]

The concept of the quick SOFA (qSOFA) score was introduced as a possible predictive tool among those with suspected infection outside the intensive care unit (ICU). It is a parsimonious clinical model originally used in adults and composed of three clinical variables—Altered sensorium with Glasgow Coma Scale score of 13 or less, systolic blood pressure of 100 mm Hg or less, and respiratory rate 22/min or greater. It was believed to offer predictive validity similar to

that of the full SOFA score outside the ICU.[19] This model was robust to multiple sensitivity analyses in the out-of-hospital, emergency department, and ward settings.

Watson et al. first reported the population-based incidence and outcomes of severe sepsis among children under 19 years old in seven states in the USA in 1995. The incidence was 0.56 cases per 1000 children per year, which was highest among infants (5.16 per 1000) and fell dramatically with age (0.20 per 1000 among 10–14-year-olds). Their hospital mortality was 10.3%, which varied little with age and was higher among children with some co-morbidity.[29] Following up the same population as Watson's study, Hartman et al. reported that the prevalence was steadily increasing from 1995 to 2005 by 81%, which reached 0.89 cases per 1000 children in 2005. The case-fatality rate, on the other hand, dropped from 10.3% to 8.9% for that decade.[30] Based on the hospitalization database from the 44 children's hospitals in the USA, Balamuth et al. found out that the prevalence of severe sepsis had been increasing from 3.7% to 4.4% among all the hospitalized children (18 years old or younger) between 2004 and 2012.[31] However, the mortality rate was significantly different between the two diagnostic populations (21.2% vs. 8.2%), one with the International Classification of Diseases, 9th edition, Clinical Modification (ICD-9) codes for severe sepsis/septic shock, the other with ICD-9 code for infection plus at least one organ dysfunction (modified Angus criteria [32]). Utilizing the same database, Ruth et al showed the prevalence rate of severe sepsis as 7.7% (6.2% in 2004 to 7.7% in 2012) in the PICU settings of those hospitals with an associated mortality rate of 14.4% (18.9% in 2004 to 12.0% in 2012; birth to 19 years of age).[33]

In 2013, a global collaborative cross-sectional study was conducted at 128 sites in 26 countries which included both the developed and the developing world (SPROUT study). This landmark study demonstrated that the prevalence of severe sepsis was 8.2% among children in ICU (<18 years old) with the associated hospital mortality of 25%, which

was not different by age and between developed and developing countries.[34]

Most of the studies conducted so far have largely focused on adult patients, therefore it is required to use clinical criteria that takes into account the age-dependent variation in normal physiologic ranges and in pathophysiologic responses. A major limitation of the SOFA score is that it was developed for adult patients and contains measures that vary significantly with age, which makes it unsuitable for children.[35]

Most of the studies on SOFA score have been done retrospectively where data has been extracted from hospital records and databases. A prospective validation involving multiple health care settings would aid in the authentication of SOFA score and it's potential for incorporation into future iterations of the definitions and disease prognostication.

Since there is a dearth of literature to assess the significance of SOFA score in the pediatric age-group, therefore this study was prospectively conducted to study the role of SOFA score and quick SOFA score in determining the outcome of children admitted in Pediatric ICU.

# AIMS & OBJECTIVES

- To assess the utility of Sequential Organ Failure Assessment (SOFA) Score as a predictor of outcome in children admitted to pediatric ICU.
- To assess the correlation of various clinicodemographic factors in relation to SOFA score and the final outcome.

# REVIEW OF LITERATURE

Sepsis lends a serious burden on the healthcare system and society.[36] Sepsis and its consequences are the leading cause of death throughout the world accounting for 19 million cases each year [37] and 1,400 deaths each day.[38] The incidence of sepsis is estimated to be 1,655,000 [39] alone in a developed nation like United States resulting in more than 250,000 deaths each year.[40]

The global epidemiological data provided by the Intensive Care Over Nations (ICON) study involving 10,069 intensive care unit (ICU) patients confirmed that 2,973 (29.5%) of patients had sepsis on admission or during their ICU stay. The ICU mortality was 25.8%, and hospital mortality was 35.3% in the patients with sepsis, which was a significantly higher mortality rate than in the general ICU population (ICU mortality, 16.2%; hospital mortality, 24.2%).[41]

A multi-centric observational study conducted prospectively on 5478 patients admitted to Intensive Care Units (ICUs) in India revealed that 25 % of the patients were admitted due to Systemic Inflammatory Response Syndrome (SIRS) and organ dysfunction. The incidence of severe sepsis was 16.45% out of all the ICU admissions and the mortality rate was 12.08 %, of which 59.26 % of patients died of severe sepsis.[42]

In a study conducted by Proulx et al. on children, 23 % of ICU patients had sepsis.[43]

The first step in implementation of optimal management of sepsis is identification of patients with sepsis. This requires formulation of defining guidelines for prompt identification of patients with sepsis that helps initiate early treatment.

Initial guidelines defining Sepsis were formulated at a 1991 consensus conference [8] with a subsequent update in the sepsis definitions in 2001 that expanded the list of signs and symptoms of sepsis to reflect clinical bedside experience.[6]

The initial sepsis definitions included sepsis (systemic inflammatory response syndrome [SIRS] and suspected infection), severe sepsis

(sepsis and organ dysfunction) and septic shock (sepsis and hypotension despite adequate fluid resuscitation.

Systemic Inflammatory Response Syndrome (SIRS) encompasses systemic inflammation and organ dysfunction and is a subset of cytokine syndrome, involving abnormal regulation of various cytokines.[8]

In 2006, a European study depicted that diagnosis of sepsis based on SIRS criteria above has a sensitivity of almost 100% but a specificity of 18% in the case of severe infection.[16] A prospective observational Dutch study showed that the timing of SIRS scoring significantly alters the measured incidence of sepsis and 17% of ICU patients did not meet SIRS criteria.[44] A study conducted in New Zealand showed that SIRS criteria is missing in one in eight patients with severe infection and that this lack of positivity was associated with highest hospital morbidity and mortality.[16]

Sir William Osler recognised in a study that 'except on few occasions, the patient appears to die from the body's response to infection rather than due to the infection'.[45] This study also revealed that organ dysfunction and severe sepsis are distinctly associated with higher mortality.[46]

An international task force was convened by the Society of Critical Care Medicine and the European Society of Intensive Care Medicine to revise the then-prevailing definitions for sepsis and septic shock. Using an expert Delphi consensus process, new Sepsis-3 definitions were formulated [9,19] that moved away from the association between infection and inflammation and completely abandoned SIRS criteria. Sepsis is now defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. Septic shock is a subset of sepsis with substantially increased risk of mortality.

The World Health Assembly has acknowledged the lack of data on sepsis. There are various limitations in the population-based studies on pediatric sepsis, First, these are based on retrospective use of hospital coding data or registries not specifically designed for sepsis-3. Also, studies are mostly conducted by enrolment of a large proportion of

children with suspected rather than confirmed infections (viral infections, pre-treated bacterial infections, and non-infectious diseases).

Prior studies insufficiently characterize differences between community-acquired and hospital-acquired sepsis, leading to large variation in epidemiologic estimates.

A prospective study conducted by Schlapbach and others on children with proven infection (blood culture positive) who fulfilled the pediatric sepsis definitions [47] assessed that the incidence of sepsis decreased by two-thirds if organ dysfunction rather than SIRS was used as the criterion for sepsis (8.3 vs. 25.1 per 100,000). A dramatic change in mortality was observed from less than 1% in patients with SIRS but no organ dysfunction to 17% if organ dysfunction was present, indicating that SIRS is likely a feature of infection and not sepsis.

Implementation of various prognostic scoring systems can improve medical care in intensive care units. These scoring systems are used to assess severity of illness, triage planning, therapeutic strategy, clinical course and patient outcome.

The first scoring system used in pediatrics, originally described in 1984 was the 34 variable Index of Physiological Stability.[48] In 1988, Pollack took some of these 34 variables and designed the 14 variable Pediatric Risk of Mortality (PRISM) score.[23] Pollack and others redefined their own system again in 1996 with 17 physiologic variables and named their new score as PRISM III.

The PRISM III score encompasses 17 physiologic variables namely Glasgow coma scale; pupillary reactions; systolic blood pressure (mmHg); heart rate (beats per minute); axillary temperature (centigrade degrees); pH, PaCO2 (mmHg); total CO2 (mmol/L); PaO2 (mmHg); acidosis; glucose (mg/dl); potassium (mEq/L); creatinine (mg/dl); blood urea nitrogen concentration (mg/dl); white blood cell count (cells/mm3); platelet count (cells/mm3); and partial thromboplastin time(s).This score was tested in 32 PICU in the United States of America and it was concluded that the PRISM III score was better than the original PRISM and should be used in every PICU.[49]

In Europe, Shan et al [24] proposed their own Pediatric Index of Mortality (PIM), this score has only eight variables and it is done immediately when the patient is admitted. Further comparative studies between the PRISM III score and the PIM [50,51], have reported that both scores are equally adequate.

APACHE II [52] is a validated prognostic score designed for use in the ICU; MEDS [53] is the only score specifically designed to stratify septic patients within the Emergency Department. Predisposition, Infection, Response and Organ Damage (PIRO) score was designed as a staging system for septic patients.[54]

The Sequential Organ Failure Assessment (SOFA) score is a predominantly used scoring system nowadays.[35] It is a simple and an objective scoring system that grades as well as quantifies organ dysfunction and accounts for clinical interventions. A higher SOFA score is associated with an increased probability of mortality.[26] The clinical criteria for sepsis include suspected or documented infection and an acute increase of two or more Sequential Organ Failure Assessment (SOFA) points as a proxy for organ dysfunction. SOFA score comprises six sub-scores, namely respiratory, cardiovascular, hepatic, coagulation, renal and neurological systems, each scored from 0 to 4 with an increasing score reflecting worsening organ dysfunction.[35,26] SOFA score is calculated based on the most severe value for each sub-score in the preceding 24 hours.[27]

The SOFA score is an intrinsically informative endpoint because it can be used to evaluate the effects of treatment on organ dysfunction, a primary focus of intensive care. It should be noted that a treatment that improves SOFA may not necessarily reduce mortality, or vice versa. Mortality may also be influenced by other factors that are not captured by the SOFA score.[55,56]

- The central nervous system (CNS) component of the SOFA score is the least accurately measured and associated with the most errors.[57]
- The respiratory component assessment of the SOFA score relies on invasive arterial monitoring to measure arterial partial pressure

of oxygen followed by calculation of the PaO2/FiO2 ratio. This assessment may be limited when arterial monitoring is not employed. Recent studies have supported calculation of a respiratory SOFA component based on peripheral arterial saturations.[58]

- The peak level of cardiovascular support for a given 24-h period should be used to calculate the daily cardiovascular SOFA score.
- The SOFA score is based on the clinical indices of creatinine or urine output.
- The haematology component of the SOFA score is calculated using the measured platelet concentration. The lowest platelet value for the preceding 24 hours should be determined before transfusion (if given), and if platelets are given regularly, the lowest pre-transfusion value should be used to calculate each daily score.

A retrospective cohort analysis of the ANZICS database was done to assess the SIRS criteria in the definition of severe sepsis and to compare the prognostic accuracy of the SOFA score, SIRS criteria, and qSOFA score for in-hospital mortality among adults admitted to the ICU with suspected infection. The SOFA score increased by two or more points in 90.1% of the patients, 86.7% patients had SIRS score of two or more and 54.4% had a qSOFA score of two or more. As per the study results ,an increase in the SOFA score of two or more had greater prognostic accuracy for in-hospital mortality (AUROC 0.753) than SIRS (AUROC 0.589) or the qSOFA score (AUROC 0.607).[59]

Vincent et al analysed that SOFA score can be reliably used to describe the prognosis in children. It was also suggested that regular and repeated scoring may be helpful in identifying the categories of patients who are at major risk of prolonged stay or death.[56]

de Grooth et al. [60] interrogated the use of SOFA and its association with mortality in 87 studies. They studied the relationship between Fixed Day SOFA which is the SOFA score at a defined time point in the study which allows comparison of acute morbidity at a defined time point across study groups and delta SOFA which is measured as the change in SOFA score from baseline to a defined time point. It was

demonstrated that the Delta SOFA significantly correlated with mortality with a low degree of heterogeneity. A fixed day SOFA as an endpoint was not reliably associated with mortality.

Priya Gogia et al conducted a study in 100 critically ill children admitted to PICU of a tertiary care unit in India. Initial SOFA score was calculated within 24 hours of admission and then was calculated after 72 hours. Delta SOFA score was calculated as the change in SOFA score over 72 hours. The study revealed that SOFA at 72 hours score is statistically strong enough to prognosticate risk of mortality in PICU.[61]

Ferreira et al. analysed that initial SOFA, mean SOFA, SOFA at 48 hours and delta SOFA values were high in non survivors as compared to survivors ($p < 0.001$) in all scores.[20,27] The difference between SOFA at 48 hours and SOFA at 0 hours has been calculated and mentioned this as delta SOFA in this study.[27]

Machado et al assigned delta SOFA as the variation of SOFA score day 1 and day 3. Regardless of the initial SOFA score, early serial evaluation of the SOFA scores during the first 3 days of PICU admission is a better indicator of the prognosis than a single assessment obtained at admission. Sequential SOFA at 72 hours was better predictor in contrast to initial SOFA.[62]

The Quick SOFA score is a simple bedside scoring system which was formulated to identify Adult patients with suspected infection who are likely to have poor outcomes and incorporates altered mentation, systolic blood pressure of 100 mmHg or less, and respiratory rate of 22/min or greater.[9] This score can be applied to patients who are out of the hospital, in the hospital ward or in the emergency department. Among non-ICU encounters in patients with suspected infection, qSOFA had a predictive validity for in-hospital mortality (area under the receiver operating characteristic curve [AUROC] 0.81) that was greater than the full SOFA score (AUROC 0.79) and SIRS (AUROC 0.76). On the contrary, for the ICU patients, the predictive validity for in-hospital mortality was lower for qSOFA (AUROC 0.66) and SIRS (AUROC 0.64) compared with the full SOFA score (AUROC 0.74).[19]

A study conducted by the University of Chicago within the emergency department and ward depicted that the qSOFA failed validation in this study of 30,677 patients with suspected infection. The Systemic inflammatory response syndrome, qSOFA, Modified Early Warning Score (MEWS), and National Early Warning Score (NEWS) were compared. Using the highest non-ICU score of patients, two or more SIRS had a sensitivity of 91%and specificity of 13% for the composite outcome (death or ICU transfer) compared with 54% and 67% for qSOFA of two or more, 59% and 70% for MEWS of five or more, and 67% and 66% for NEWS of eight or more, respectively. The study concluded that the qSOFA score is not apt to replace the currently used early warning scores while risk-stratifying patients with suspected infection.[63]

Schlapbach and colleagues carried a study among 2594 pediatric ICU patients in Australia and New Zealand and compared the ability of SIRS, SOFA and Pediatric Logistic Organ Dysfunction (PELOD)-2 score[64] to discriminate hospital mortality or ICU length of stay ≥ 3 days.[65]

Another comparison derived was Infection + pSOFA /PELOD-2 score ≥ 2 to 2005 “severe sepsis” which is defined as SIRS + infection + either cardiovascular dysfunction, acute respiratory distress syndrome (ARDS), or ≥ 2 other organ system dysfunctions [7]. The investigators found that both pSOFA and PELOD-2 had better overall predictive validity as measured by the AUROC than SIRS and 2005 “severe sepsis” for chosen outcomes. Use of PELOD-2 ≥ 8 generated the highest adjusted AUROC at 0.81. The composite outcome of mortality and/or ICU length of stay ≥ 3 days yielded similar results.

The dilemma with addressing sepsis in any age group is attributed to the heterogenous manifestation of the disease in varied patient population. The definition of adult sepsis has undergone dynamic revision in accordance with the vast published research.

Adults and children differ in physiology, predisposing diseases, and sites of infection which necessitates separate diagnostic criteria and management strategies.

Despite the remarkable variation, there has been limited focus on pediatric sepsis and most of the defining guidelines have been extrapolated from the adult studies.

Recently, attention has been given to the patients of pediatric age-group and the many caveats that distinguish the pediatric patients from the adults. Defining sepsis in the pediatric population is more challenging because of the age-dependant vital signs and their tremendous physiologic reserve which often masks the severity of their condition.

Recent studies have attempted to adapt the SOFA score to pediatric patients, primarily focusing on the cardiovascular subscore.[66,67] However, none have taken into account the age-related variability of the renal subscore criteria despite the increasingly recognized detrimental effect of kidney dysfunction in younger patients.[68-70]

The respiratory subscore criteria in the SOFA score based on the ratio of PaO2 to the fraction of inspired oxygen (FiO2) has not been modified in previous adaptations of the SOFA score although there is limited use of arterial blood gases in children.[71-73]

A study conducted on PELOD-2 score, evaluated the cardiovascular and renal subscores of the SOFA score and adapted the age-dependant criteria making it suitable for pediatric patients and the ratio of peripheral oxygen saturation (SpO2) to FiO2 has been validated as an alternative to the PaO2:FiO2 ratio in children.[64]

SOFA Score was originally developed for adult patients. In order to adapt and validate a pediatric version of SOFA (pSOFA) in critically ill children, a retrospective observational study including all children from 1 month to 21 years in tertiary care PICU was studied over seven and half years, by obtaining data from electronic health record base. Age adjusted cut off were taken. Daily pSOFA scores were calculated from admission until day 28 of hospitalization, discharge, or death (whichever came first). Three additional pediatric organ dysfunction scores were calculated for comparison. The maximum pSOFA score had excellent discrimination for in-hospital mortality, with an area under the curve of 0.94 (95%CI, 0.92-0.95). The pSOFA score had a similar

or better performance than other pediatric organ dysfunction scores. According to the Sepsis-3 definitions, 14.1% patients were classified as having sepsis and had a mortality rate of 12.1%, and 4.0% had septic shock and a mortality rate of 32.3%. Patients with sepsis were more likely to die than patients with confirmed or suspected infection but no sepsis (odds ratio, 18; 95%CI, 11-28). It was concluded that the patients with sepsis had higher mortality than patients with confirmed or suspected infection but no sepsis.[74]

Since there is paucity of literature to establish the role of SOFA Score in determining the outcome of critically ill pediatric patients, Hence we endeavoured to conduct a study on SOFA score in pediatric population, taking into account the age-adjusted criteria. Also, most of the studies conducted in the past have been retrospective, this study was conducted prospectively in pediatric patients admitted to Pediatric ICU over a period of one year.

# MATERIALS AND METHODS

**Source of data**

This was a prospective cohort study conducted in the 10-bedded level III Pediatric intensive care unit of a tertiary care teaching hospital, Dayanand Medical College and Hospital, Ludhiana. The study prospectively included children, 1 month to 18 years of age admitted with evidence of fever at the time of presentation with clinical diagnosis of sepsis.

**Method of collection of data**

It was an observational study conducted over a period of one year from 1 January 2019 to 31 December 2019. The study was approved by the Institutional ethics committee. Written informed consent was obtained from the parents/legal guardians prior to incorporation into the study.

**Inclusion criteria**

Children between 1 month to 18 years of age admitted in Pediatric ICU with fever (evidence of suspected or confirmed sepsis) at the time of presentation were included into the study.

**Exclusion criteria**

- Patients not presenting with fever
- Age less than 1 month
- Duration of stay less than 24 hours in Pediatric ICU
- Denial of consent for participation in the study

All admissions with evidence of fever at the time of admission were evaluated. Arterial blood gases, hemoglobin, total and differential blood count, platelet count, peripheral blood film, blood glucose, renal function tests, and chest X-ray were done in all cases. Other investigations like blood culture, C-reactive protein, liver function tests, urine routine and culture, stool routine and culture, calcium, urine electrolytes, etc. were sent in required cases. Prognostic scores including PRISM II and SOFA score were calculated for all patients included in the study. The primary outcome was mortality, recorded as discharged or died. Morbidity was defined by prolonged PICU stay, need for ventilation and inotropes.

The following data was compiled to derive and interpret the SOFA score as shown in proforma.

- Demographic details
- Clinical symptoms with detailed history
- Vital signs and examination findings
- Anthropometric indices
- Administration of oxygen
- Fluid challenge (If performed)
- Ventilator requirement
- Inotropes requirement
- Laboratory investigations
- Primary diagnosis made by attending clinicians
- Outcome including discharge, death or DAMA (discharged against medical advice)

The Sequential Organ Failure Assessment (SOFA) Scoring system was calculated by assessing the consisted physical and laboratory variables representing six organ systems namely Respiratory (PaO2/FiO2 or SPO2/FiO2 ratio), Neurological (Glasgow coma scale), Cardiovascular (Blood pressure and inotropic requirement), Renal (Urine output or Creatinine), Hematological (Platelet count) and Hepatic system (Bilirubin levels). Each organ system parameter was graded from 0 to 4, Hence the Total SOFA score ranged from 0 to 24 as shown in following table.

**Table 2: SOFA score according to the European Society of Intensive Care Medicine.**[20,25-28]

| Variables | Score<br>0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| | *Respiratory* | | | | |
| PaO2/ FiO2<br><br>SaO2/FiO2 | ≥400 | 300- 399<br><br>221-301 | 200- 299<br><br>142-220 | 100- 199 with respiratory support<br>67-141 | <100 with respiratory support<br><67 |
| | *Coagulation* | | | | |
| Platelets (103/mm3) | ≥150 | 100-149 | 50-99 | 20-49 | <20 |
| | *Hepatic* | | | | |
| Bilirubin (mg/dl) | <1.2 | 1.2- 1.9 | 2.0- 5.9 | 6.0- 11.9 | >12 |
| | *Cardiovascular* | | | | |
| Hypotension | No hypotension | Low MAP<br>(As per age) | Dopamine ≤ 5<br>or Dobutamine<br>(any dose) | Dopamine >5<br>or<br>Norepinephrine<br>≤ 0.1 | Dopamine >15<br>Or<br>Norepinephrine<br>> 0.1 |
| | *Neurological* | | | | |
| GCS | 15 | 13- 14 | 10- 12 | 6- 9 | <6 |
| | *Renal* | | | | |
| Creatinine (mg/dl) | <1.2 | 1.2- 1.9 | 2.0- 3.4 | 3.5- 4.9 | >5 |

Eligible patients were analysed as per the age-adjusted cut-offs according to the PALS guidelines. The data required for the calculation of SOFA score was collected at the time of admission within 24 hours and then 72 hours after ICU admission and recorded on standardised forms along with the patient outcome. The information was used to

derive the 24 hours SOFA score and the 72 hours SOFA Score. The sum total of the 6 scores for each organ system gives SOFA score (ranging from 0 to 24) which is used for patient risk-stratification in PICU.

The 24 hours SOFA score was calculated for the patients admitted in PICU at admission on the basis of clinical evaluation in the emergency department and the initial laboratory workup. For derivation of 72 hours SOFA score, if a value was repeated more than once over a 24-hour period then the worst value for the variable was used to calculate the sub-score for each of the 6 organ system parameter.

Quick SOFA Score was also derived for all patients. This is a simple bedside criteria used to identify patients with suspected infection who are likely to have poor outcomes. It includes altered sensorium, age-appropriate systolic blood pressure and age-appropriate respiratory rate as the three components. Each parameter is graded from 0- 1 that makes the Quick SOFA score range from 0 to 3.

After recruitment in the study, patients were followed until discharged or deceased. The duration of PICU stay (in days) and the final outcome (discharged, discharged against medical advice or death) were recorded.

The data collected was analysed for the morbidity (in terms of duration of PICU stay, need for inotropes and ventilator support etc.) and mortality. Mortality and morbidity were considered a poor outcome in this study.

**Analytical framework:**

A. **Method of collection of data**:[75] At the time of admission to PICU, age, sex, provisional diagnosis, brief clinical history, and the vital signs were recorded.

Primary assessment was done in all patients and recorded as per PALS guidelines [75] as below

**a. Airway:**

| **Airway Identification** | **Features** |
|---|---|
| Stable: | Open : No obstruction to flow of air |
| Unstable: | Maintainable : Require positioning , suctioning |
| Obstructed: | Non-Maintainable : Require advanced airway adjuncts |

**b. Breathing :**

**1. Respiratory rate :**

- **Tachypnea**: It is defined as respiratory rate that is more than normal for age.

**Table 3: Normal Respiratory rate at different ages** [75]

| **Age** | **Breath per minute** |
|---|---|
| Infant (<1 year) | 30 -53 |
| Toddler (1-3 years) | 22 -37 |
| Pre-schooler (4-5 years) | 20-28 |
| School age (6-12 years) | 18-25 |
| Adolescent (13-18 years) | 12-20 |

- **Bradypnea**: Slow breathing is known as Bradypnea. Breathing rate <10 per minute at any age is considered abnormal.
- **Apnea**: It is cessation of breathing for 20 seconds or longer or earlier if associated with cyanosis, bradycardia, pallor and/or hypotonia.

2. **Effort or Work of breathing:** When tachypnea alone fails to meet the oxygen demands of the body, accessory muscles of respiration work hard to increase the airflow to the lungs.

Accessory muscles like Alae nasi, suprasternal, supraclavicular, intercostal, subcostal muscles were assessed that manifested as :

- Nasal flaring
- Subcostal and intercostal retractions
- Head bobbing
- Seesaw respiration

3. **Auscultation**: Lung sounds were assessed to gather information about the air entry into different zones of the lungs.

| **Sounds** | **Inference** |
|---|---|
| Stridor | Upper airway obstruction |
| Wheeze | Lower airway obstruction |
| Crepitations | Fluid/ mucus/ blood in lungs |
| Grunting | Alveolar atelectasis |

4. **Oxygen saturation** :

- It is the percentage of the child's haemoglobin that is saturated with oxygen (SpO2).
- Normal SpO2 is 94% or more in room air.
- SpO2 was monitored using Nellcor Covidien pulse oximetry.
- The probe was attached to the patient's finger, toe or ear lobe.

**c. Circulation :**

1. **Rate and Rhythm:** Rhythm was assessed by Electrocardiography after patients were connected to Cardiac monitor.

Heart rate is also an age-dependant parameter.

**Table 4: Normal Heart rate at different ages**[75]

| **Age** | **HR (beats/ minute)** |
|---|---|
| Infant ( <1 year) | 100 -180 |
| Toddler (1-3 years) | 98- 140 |
| Pre- schooler ( 4-5 years) | 80 -120 |
| School age ( 6-12 years) | 75 – 118 |
| Adolescent ( 13-18 years) | 60 -100 |

2. **Central and Peripheral pulses:** The central pulses were palpated in the neck region (Carotids) in an older child, while in infants and younger children, either the femoral or brachial arteries were assessed.

   The peripheral pulses evaluated were the radial, dorsalis pedis or posterior tibial arteries.

3. **Capillary refill time:** The capillary refill time (CRT/ CFT) was evaluated by applying pressure over the nail bed or skin and blanching the underlying capillary circulation. While assessing the CFT in dependant parts, the extremity was elevated above the level of the heart. Normally the CFT is 2- 3 seconds. A Prolonged CFT is indicative of circulatory insufficiency and a Brisk CFT (<2 seconds) is suggestive of warm stage of septic shock due to underlying vasodilatation.

4. **Blood pressure** :

- In the emergency, At-admission blood pressure was recorded using the Riester aneroid syphgmomanometer.
- In the Pediatric ICU, Non-invasive BP was recorded with the help of Nihon Kohden cuff and invasive BP monitoring was done by securing an arterial cannula in a peripheral artery and attaching iPEX pressure monitoring kit to the Nihon Kohden monitor.
- Appropriate- size cuffs covering at least half the arm length between the acromion and olecranon process ensuring the bladder of the cuff wraps around 75-80% of the mid-arm circumference were used.

**Table 5: Normal Blood pressure** [76]

| Age Category | Systolic blood pressure | Diastolic blood pressure | Abnormally low Systolic pressure |
|---|---|---|---|
| 1-3 months | 78-103 | 44-65 | <70 |
| 4-6 months | 82-105 | 46-68 | <70 |
| 7-12 months | 67-104 | 20-60 | <70 + ( Age in years x 2) |
| 2-6 years | 70-106 | 25-65 | <70 + ( Age in years x 2) |
| 7-14 years | 79-115 | 38-78 | <70 + ( Age in years x 2) |
| 15-18 years | 93-131 | 45-85 | <90 |

**d. Disability**

The neurological parameter was assessed by the Glasgow Coma Scale (GCS).

The GCS score is calculated by adding the scores of the following three components:

- Eye response : Range 1-4
- Verbal response : Range 1-5
- Motor response : Range 1-6

**Table 6: Glasgow coma score**[77]

| **Modified Glasgow Coma Scale :** | | | |
|---|---|---|---|
| **Eye Opening** | **Score** | **Child** | **Infant** |
| | 4 | Spontaneous | Spontaneous |
| | 3 | To sound | To sound |
| | 2 | To pain | To pain |
| | 1 | None | None |
| | | | |
| **Verbal** | 5 | Oriented | Coos/ Babbles |
| | 4 | Confused | Irritable cry |
| | 3 | Inappropriate words | Cries to pain |
| | 2 | Incomprehensive sounds | Moans to pain |
| | 1 | None | None |
| | | | |
| **Motor** | 6 | Obeys commands | Normal spontaneous |
| | 5 | Localises pain | Withdraws to touch |
| | 4 | Withdraws to pain | Withdraws to pain |
| | 3 | Decorticate flexion | Decorticate flexion |
| | 2 | Decerebrate extension | Decerebrate extension |
| | 1 | None | None |

- Blood sample was collected from each patient enrolled in the study which was used for the estimation of serum sodium, potassium, chloride, urea, creatinine, complete hemogram and serum bilirubin levels. One ml of blood sample was taken in Plain microtainer and sent for analysis of renal function tests and bilirubin levels. One ml of blood sample collected in EDTA microtainer was sent for estimation of complete hemogram. Serum electrolytes were estimated using fully automated biochemical analyser [COBAS-6000] and [Beckman Coulter].
- An arterial blood gas was taken and analysed on GEM 3500 ABG analyser for documenting PaO2 (measured in millimetres of mercury) and other parameters like lactate, HCO3, BE, PaCO2 etc.
- The PaO2 to FiO2 ratio was preferentially derived where arterial blood gases were obtained. The cases where arterial sampling was not done and PaO2 was not available, we used the peripheral arterial oxygen saturation (SaO2) to FiO2 ratio (SaO2/FiO2).
- In case of anicteric patients, if the serum bilirubin was not investigated then a 0 value was taken.
- The hematology component of the SOFA score was calculated using the platelet count. If platelets were given regularly, the pre-transfusion value was used to calculate the subscore.
- MAP (measures in millimetres of mercury) was used for scores 0 and 1. Vasoactive infusion (measured in micrograms per kilogram per minute) for scores 2 to 4.
    - The maximum dose of inotropes for cardiovascular support given in the last 24 hour period was used to calculate the cardiovascular component of SOFA score.
    - Maximum continuous vasoactive infusion was administered for at least 1 hour duration.

- MAP : Mean arterial pressure [78]

It is often used as a surrogate for perfusion pressure. The cut-off taken for Mean arterial pressure to denote sub-score 1 in cardiovascular parameter of SOFA score is < $5^{th}$ centile.

The $5^{th}$ and the $50^{th}$ centile can be calculated by the following formula.

- MAP (5th percentile at 50th height percentile) : 1.5 x age (years) + 40
- MAP (50th percentile at 50th height percentile) : 1.5 x age (years) + 55

- Pediatric Risk of Mortality (PRISM) Score was also calculated for all patients included in the study. The score was performed in each patient at the time of admission. The PRISM II score that is used in our study includes 14 physiologic variables namely Glasgow coma scale; pupillary reactions; systolic blood pressure (mmHg); diastolic blood pressure (mmHg); heart rate (beats per minute); respiratory rate (breaths per minute); PaCO2(mmHg); PaO2/ FiO2 (mmHg); coagulation profile; glucose (mg/dl); potassium (mEq/L); total bilirubin (mg/dl) ; calcium (mg/dl) and bicarbonate (mEq/L).

**B. Statistical analysis :**

The data collected was analysed for the morbidity (in terms of duration of PICU stay, requirement of ventilation or inotropes) and mortality.

All the clinicodemographic factors were studied and correlation of SOFA score in relation to these factors and ultimate morbidity and mortality of patients was also analysed.

SOFA score was calculated at admission within 24 hours and then after 72 hours .The predictive ability of both the 24 hours and 72 hours SOFA scores was evaluated by the Receiver operating characteristic (ROC) curve using SPSS Version 20 statistics package. The discriminative power of the SOFA score was defined by the area under the receiver operating characteristic curve (AUROC) and the coordinates of the curve were plotted to derive the single cut-off value for SOFA score at 24 hours and 72 hours.

The patient outcome was correlated after exclusion of the patients who went DAMA because the primary cause for discontinuation of treatment in these patients was financial constraints.

Continuous data variables are presented as means and standard deviations (SD) and were compared using Student's t test. Categorical data are presented as percentages and Chi Square test was used to derive comparisons. For all statistical testing, p value $< 0.05$ was considered significant.

# OBSERVATIONS & RESULTS

It was a prospective observational study of 1 year duration, in which children 1 month to 18 years of age with the chief complaint of fever and a clinical diagnosis of sepsis, meeting inclusion criteria, admitted to Pediatric ICU, Dayanand Medical College and Hospital, Ludhiana were enrolled. This study was conducted to assess the use of Sequential Organ Failure Assessment (SOFA) score on outcome (including morbidity and mortality) in pediatric age-group.

There were total 653 admissions in PICU during the study period of 1 year (1 January 2019 to 31 December 2019) out of which 150 patients met the inclusion criteria. Total 503 cases were excluded from the study group as per exclusion criteria described in material and methods and shown in the figure below.

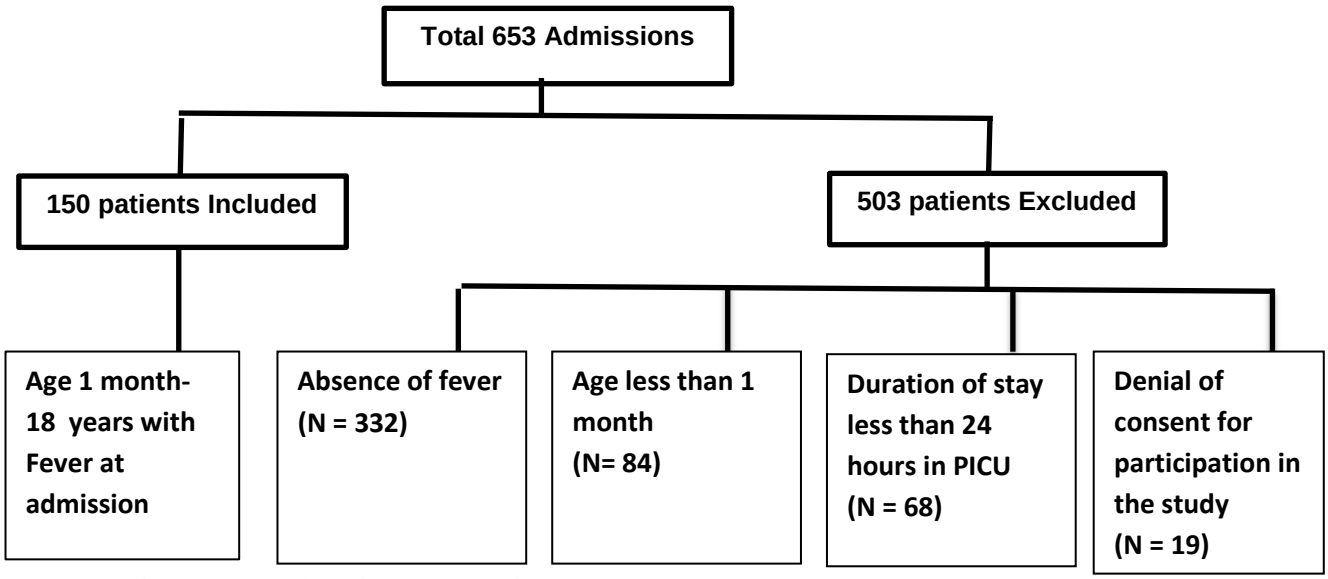
Total 653 Admissions
150 patients Included
503 patients Excluded
Age 1 month-18 years with Fever at admission
Absence of fever (N = 332)
Age less than 1 month (N= 84)
Duration of stay less than 24 hours in PICU (N = 68)
Denial of consent for participation in the study (N = 19)

**Figure 1: Selection of study group**

## A. DEMOGRAPHICS AND CLINICAL PROFILE

### a. DEMOGRAPHICS :

**Table 7: Age wise distribution of patients**

| Age group | No. of cases | Percentage |
|---|---|---|
| 1month-1 year | 26 | 17.3% |
| 1year-5years | 39 | 26.0% |
| 5years-10years | 38 | 25.3% |
| > 10years | 47 | 31.3% |
| Total | 150 | 100.0% |

In our study, out of total 150 patients, 26 patients ( 17.3%) were between 1 month and 1 year of age, 39 (26%) were between 1 to 5 years of age, 38 (25.3%) were between 5 to 10 years of age and 47 (31.3%) were more than 10 years of age. Majority of children were in the age group of more than 10 years.

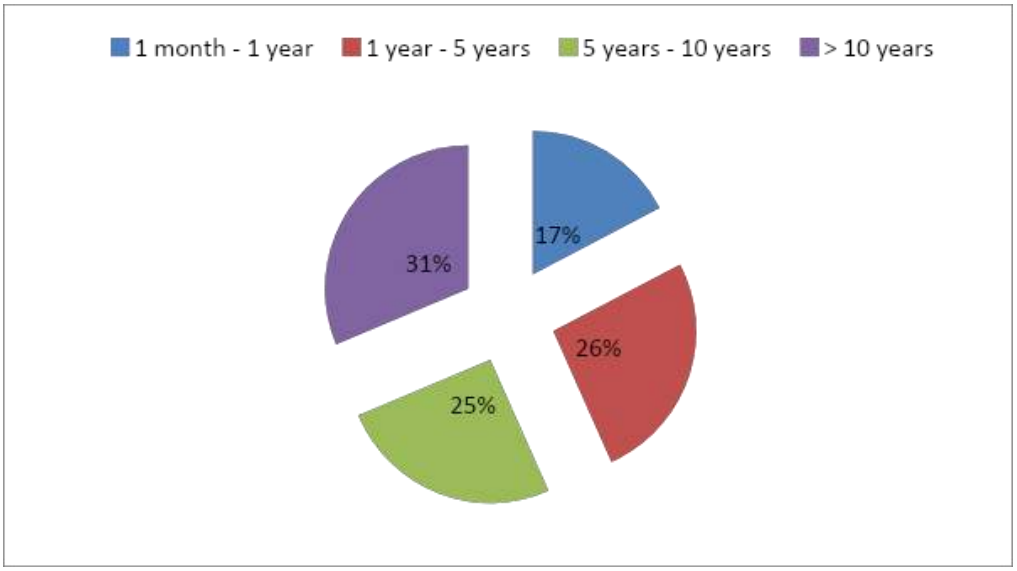


**Figure 2: Age wise distribution of patients**

We included patients 1 month to 18 years age in our study as per the inclusion criteria. The minimum age at presentation was 1 month and maximum age at presentation was 16 years in our study population. The mean age of presentation in our study population was 81.81 months (S.D.65.23) or 6.82 years (S.D.5.43). The median age of presentation was 72 months (IQR: 12-144) or 6 years (IQR: 1-12).

**Table 8: Gender distribution of patients**

| **Gender** | No. of cases | Percentage |
|---|---|---|
| Female | 60 | 40.0% |
| Male | 90 | 60.0% |
| Total | 150 | 100.0% |

In our study majority of the patients were males i.e. 90 (60%) and 60 (40%) were females as shown. Male to female ratio was 1.5:1.

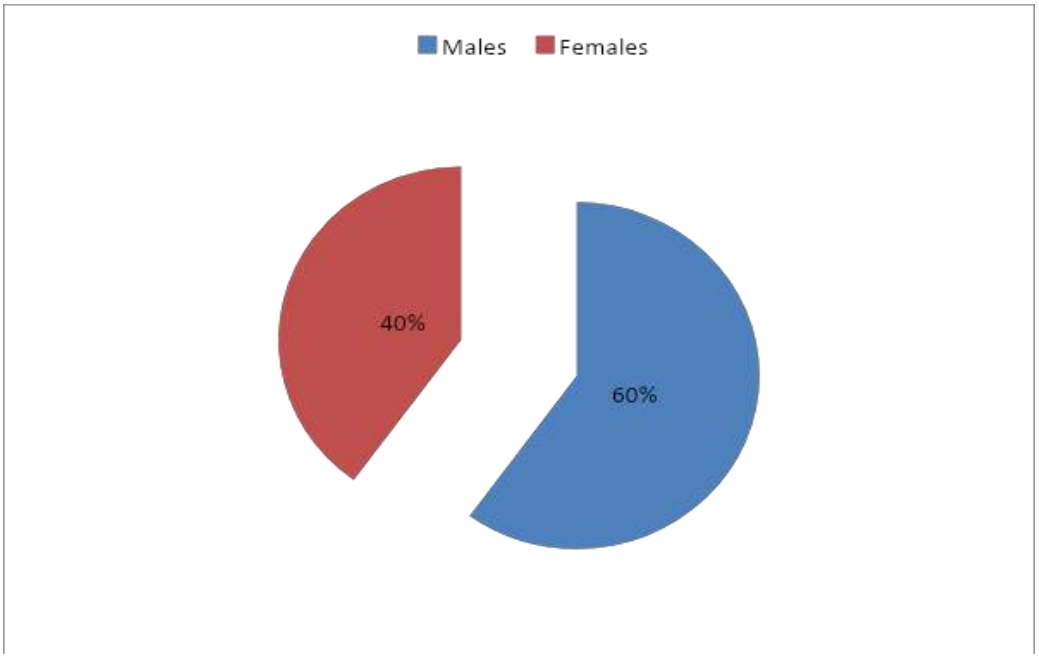


**Figure 3: Gender distribution of patients**

b. **CLINICAL PROFILE:** Detailed clinical examination of the patients was done and vitals were recorded on proformas. Age-adjusted cut-offs for vital parameters were taken as per the PALS guidelines as mentioned in materials and methods.

- **Airway and Breathing**

**Table 9: Airway and Breathing at admission**

| Parameters | No. of cases | Percentage |
|---|---|---|
| **Airway** | | |
| Open & Stable | 52 | 34.7% |
| Open & Unstable | 89 | 59.3% |
| Obstructed | 9 | 6.0% |
| **Total** | **150** | **100.0%** |
| **Respiratory Rates*** | | |
| Normal | 29 | 19.3% |
| Tachypnea | 105 | 70.0% |
| Bradypnea | 14 | 9.3% |
| Apnea | 2 | 1.3% |
| **Total** | **150** | **100.0%** |
| **SpO2** | | |
| < 90% | 79 | 52.7% |
| 90-95% | 35 | 23.3% |
| > 95% | 36 | 24.0% |
| **Total** | **150** | **100.0%** |
| **Efforts** | | |
| Normal | 37 | 24.7% |
| Increased | 106 | 70.7% |
| Acidotic | 4 | 2.7% |
| Poor | 3 | 2.0% |
| **Total** | **150** | **100.0%** |
| **Air Entry** | | |
| Normal | 100 | 66.7% |
| Differential | 30 | 20.0% |
| Poor | 20 | 13.3% |
| **Total** | **150** | **100.0%** |
| **Auscultation** | | |
| Normal | 70 | 46.7% |
| Stridor | 3 | 2.0% |
| Wheeze | 17 | 11.3% |
| Crackles | 60 | 40.0% |
| **Total** | **150** | **100.0%** |

*As per the PALS criteria [75]

In our study, out of 150 patients, 141 patients (94.0%) had open airway with 52 having stable and 89 having unstable airway and 9 (6.0%) had an obstructed airway at admission. At admission, 105 patients (70.0%) had tachypnea, 14 patients had bradypnea (9.3%) and 29 patients (19.3%) had normal respiratory rates. Two patients presented in a state of apnea (1.3%). Out of 150, 36 patients (24.0%) had saturation more than 95%, 35 patients (23.3%) presented with saturation between 90 - 95% and 79 patients (52.7%) had saturation <90%. Normal efforts of breathing was seen in 37 patients (24.7%), whereas 106 patients (70.7%) had increased rates of breathing, 4 patients had acidotic breathing (2.7%) and poor breathing efforts were seen in 3 patients (2.0%). With respect to air entry, 100 patients (66.7%) had normal air entry, 30 patients (20.0%) had differential and poor air entry was seen in 20 patients (13.3%). On auscultation it was observed that 70 patients (46.7%) had no abnormality, 17 patients (11.3%) had wheeze, 60 patients (40.0%) had crackles and 3 patients presented with stridor (2.0%).

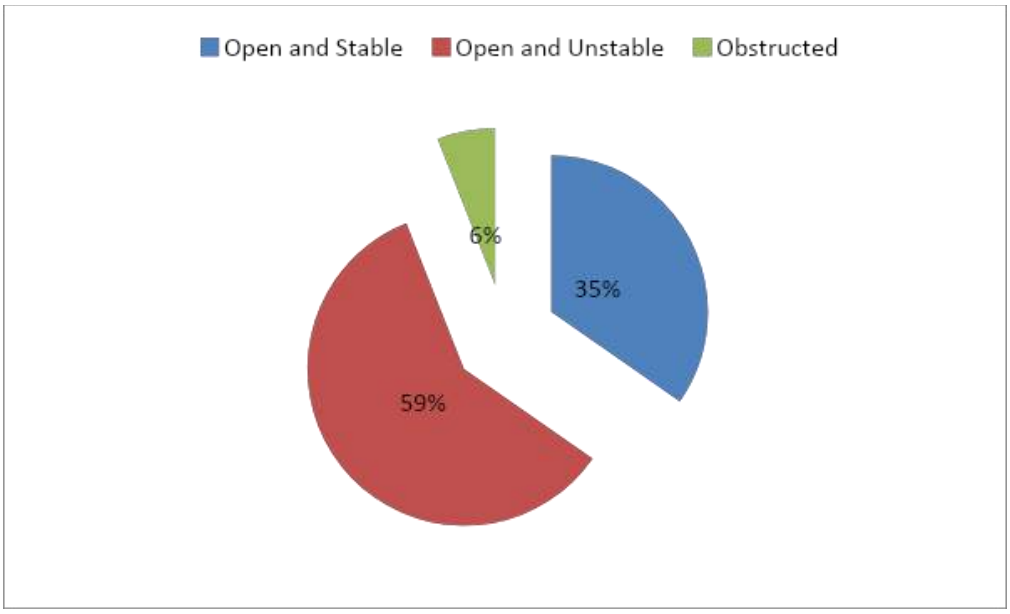


**Figure 4: Airway status at admission**

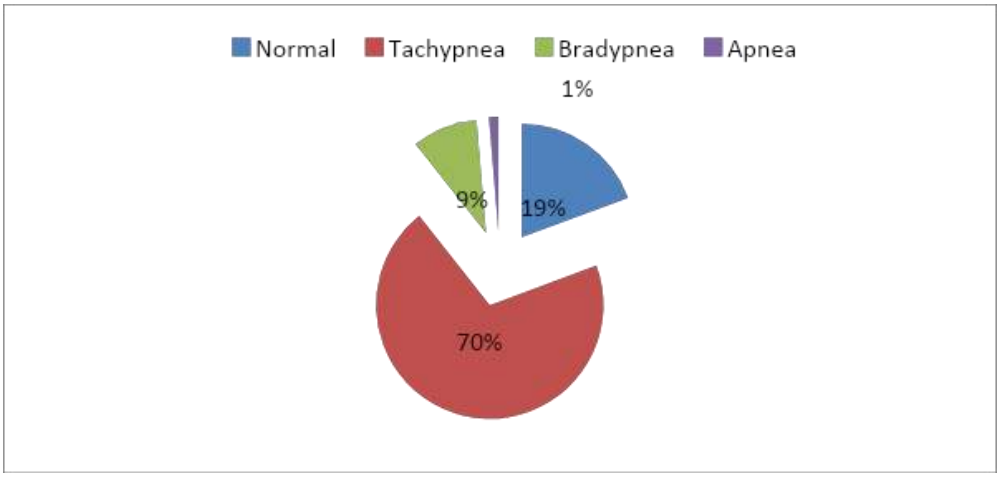


**Figure 5: Respiratory rates Interpretation at admission**

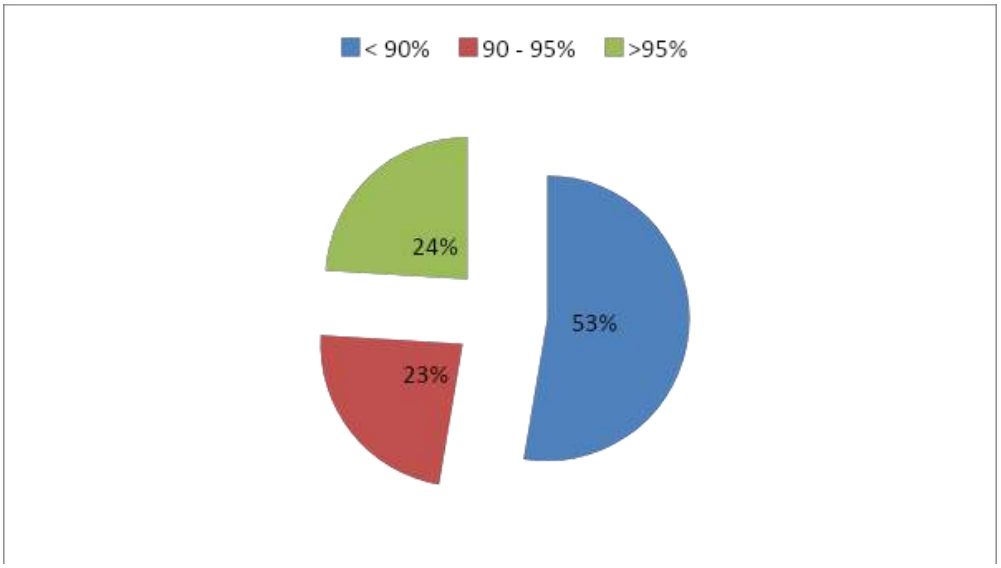


**Figure 6: Oxygen saturation at admission**

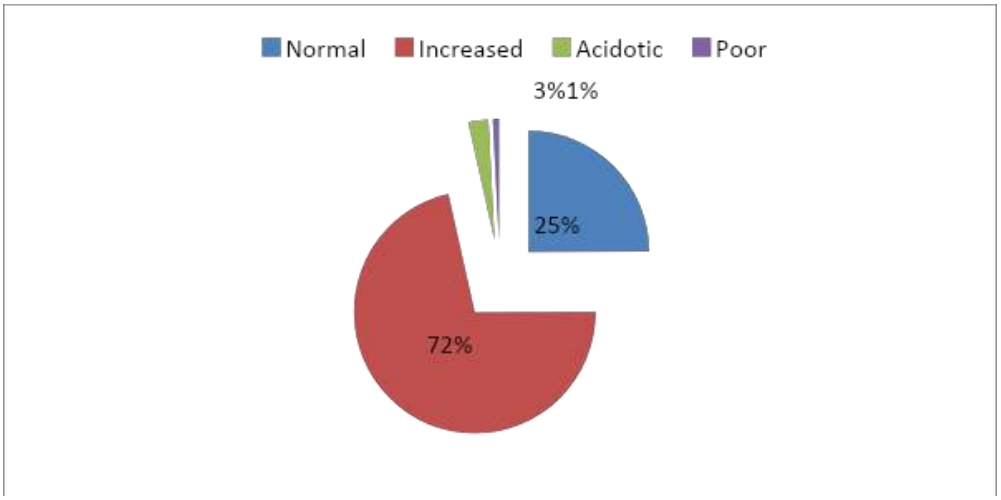


**Figure 7: Efforts at admission**

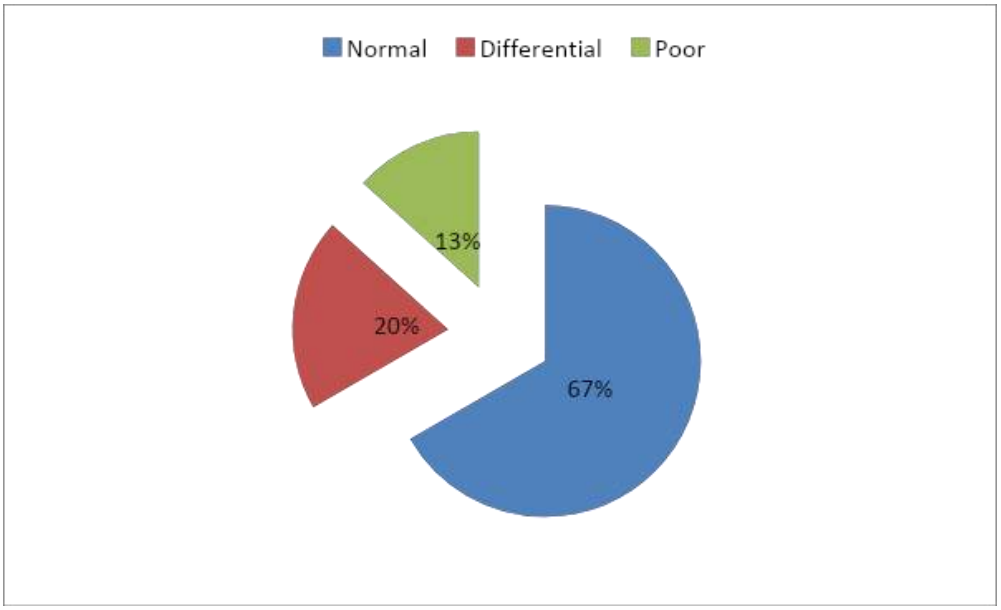


**Figure 8: Air entry at admission**

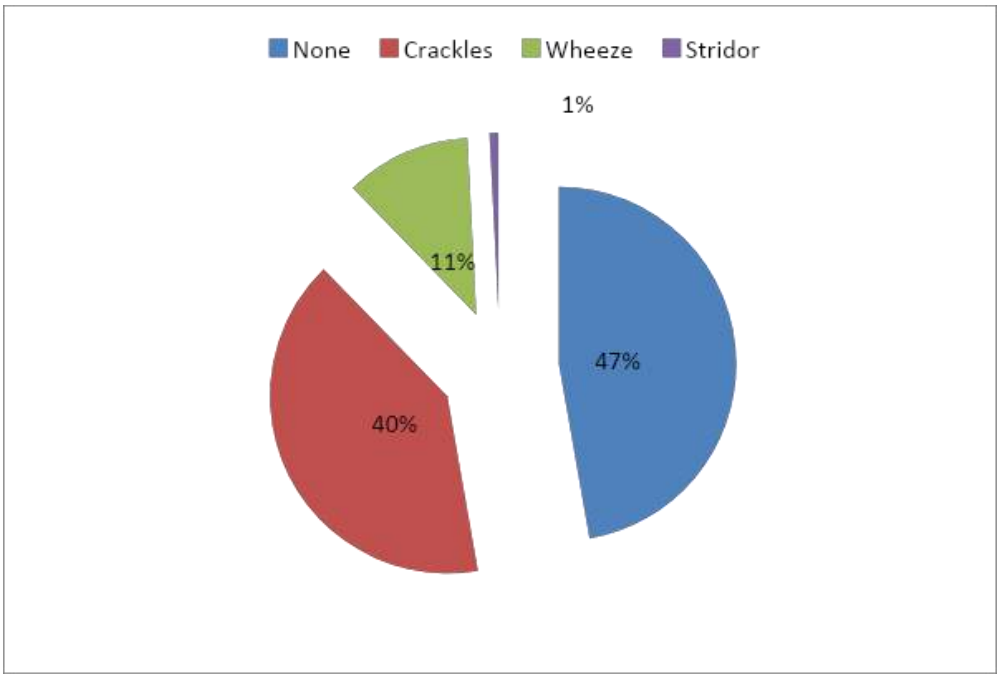


**Figure 9: Auscultation findings at admission**

- **Circulation**

**Table 10: Circulation status at admission**

| Parameters | No. of cases | Percentage |
|---|---|---|
| **Heart rate Interpretation*** | | |
| Normal | 56 | 37.3% |
| Tachycardia | 88 | 58.7% |
| Bradycardia | 4 | 2.7% |
| Arrest | 2 | 1.3% |
| **Total** | **150** | **100%** |
| **Rhythm** | | |
| Sinus | 147 | 98.0% |
| Arrythmias | 1 | 0.7% |
| Asystole | 2 | 1.3% |
| **Total** | **150** | **100.0%** |
| **CFT** | | |
| <2 sec | 5 | 3.3% |
| 2-3 sec | 107 | 71.3% |
| 4-5 sec | 28 | 18.7% |
| >5 sec | 10 | 6.7% |
| **Total** | **150** | **100%** |
| **Central Pulses** | | |
| Good | 128 | 85.3% |
| Poor | 22 | 14.7% |
| **Total** | **150** | **100.0%** |
| **Peripheral Pulses** | | |
| Good | 64 | 42.7% |
| Poor | 86 | 57.3% |
| **Total** | **150** | **100.0%** |
| **Skin Temp** | | |
| Warm | 53 | 35.3% |
| Cool | 97 | 64.7% |
| **Total** | **150** | **100.0%** |
| **Hypotension** | | |
| Normal | 78 | 52.0% |
| Hypertension | 2 | 1.3% |
| Hypotension | 70 | 46.7% |
| **Total** | **150** | **100.0%** |

*As per the PALS criteria [75]

In our study, out of 150 patients, 56 patients (37.3%) presented with normal heart rate at admission, 88 patients (58.7%) had tachycardia, 4 patients (2.7%) had bradycardia and 2 patients (1.3%) presented in arrest. With respect to the rhythm, 147 patients (98.0%) had sinus

rhythm, 1 patient (0.7%) presented with paroxysmal supraventricular tachycardia and 2 patients (1.3%) had asystole at presentation. Out of 150 patients, 5 patients (3.3%) had a brisk CFT (<2 seconds), 107 patients (71.3%) had a CFT of 2-3 seconds, 28 patients (18.7%) had a CFT of 4-5 seconds and 10 patients (6.7%) had a CFT >5seconds. Central pulses were good volume in 128 patients (85.3%), poor volume in 22 patients (14.7%). Peripheral pulses were found to be good volume in 64 patients (42.7%), poor volume in 86 patients (57.3%). Out of 150 patients, 53 patients (35.3%) had warm peripheries whereas 97 patients (64.7%) had cold peripheries. At admission, 70 patients (46.7%) had hypotension, 2 patients (1.3%) presented with hypertension and 78 patients (52.0 %) were normotensive.

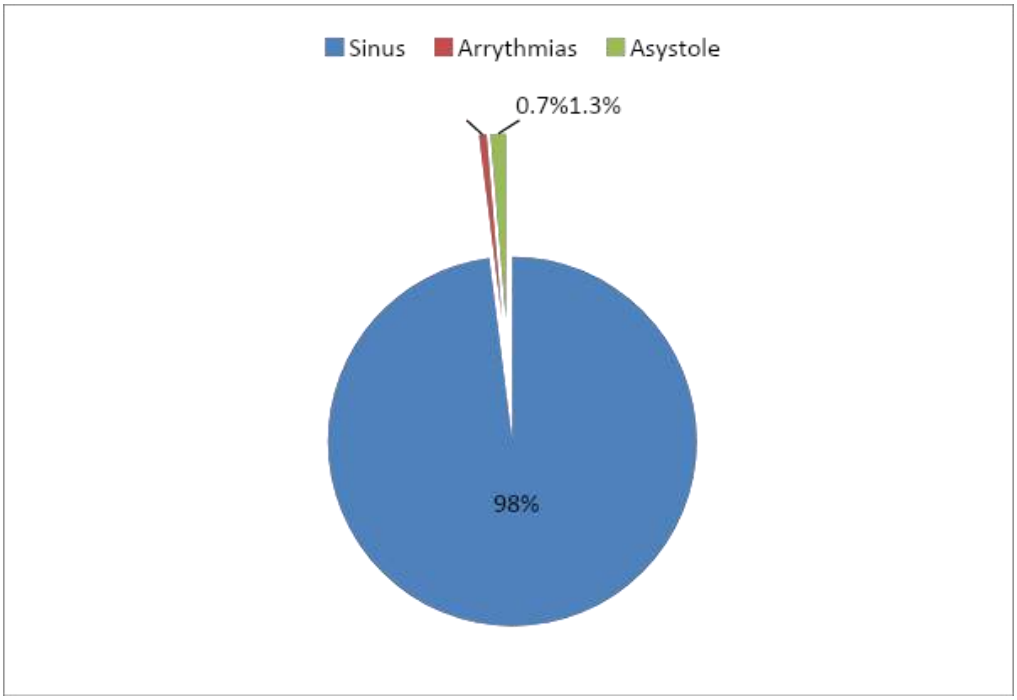


**Figure 10: Rhythm at admission**

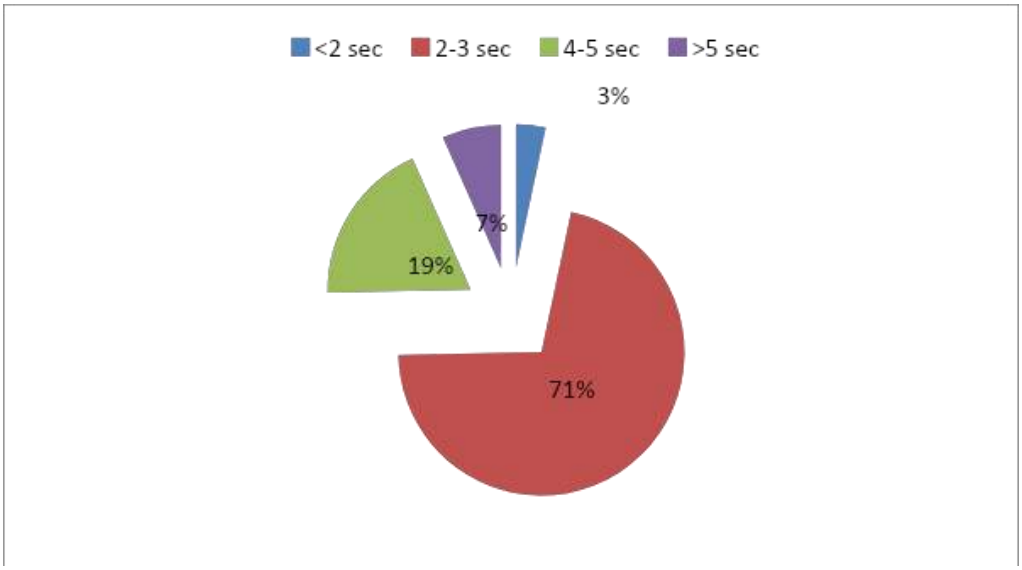


**Figure 11: CFT at admission**

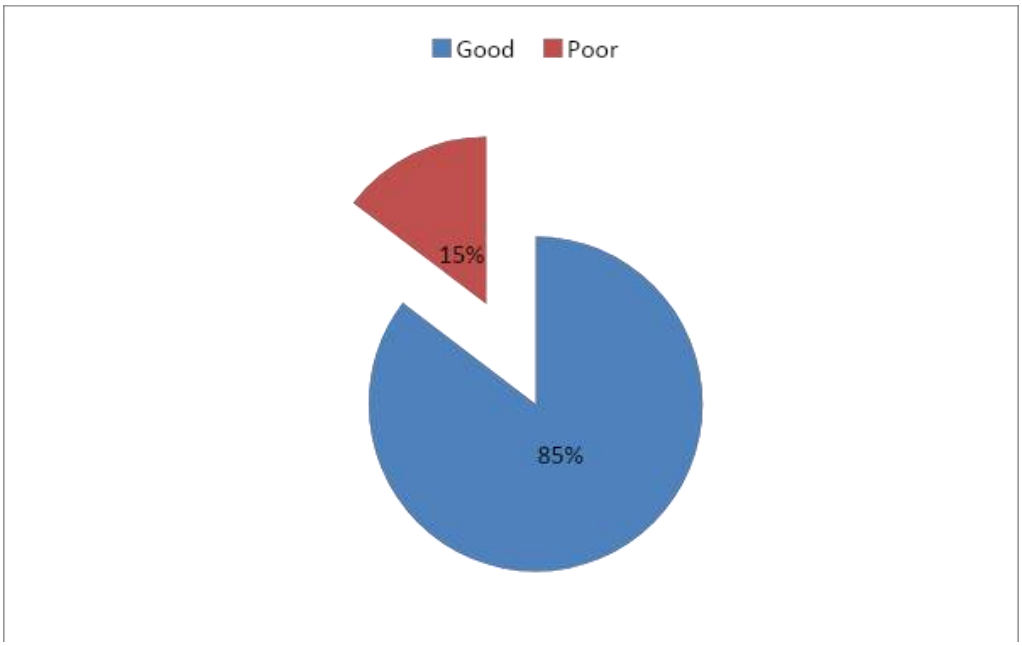


**Figure 12: Central pulses at admission**

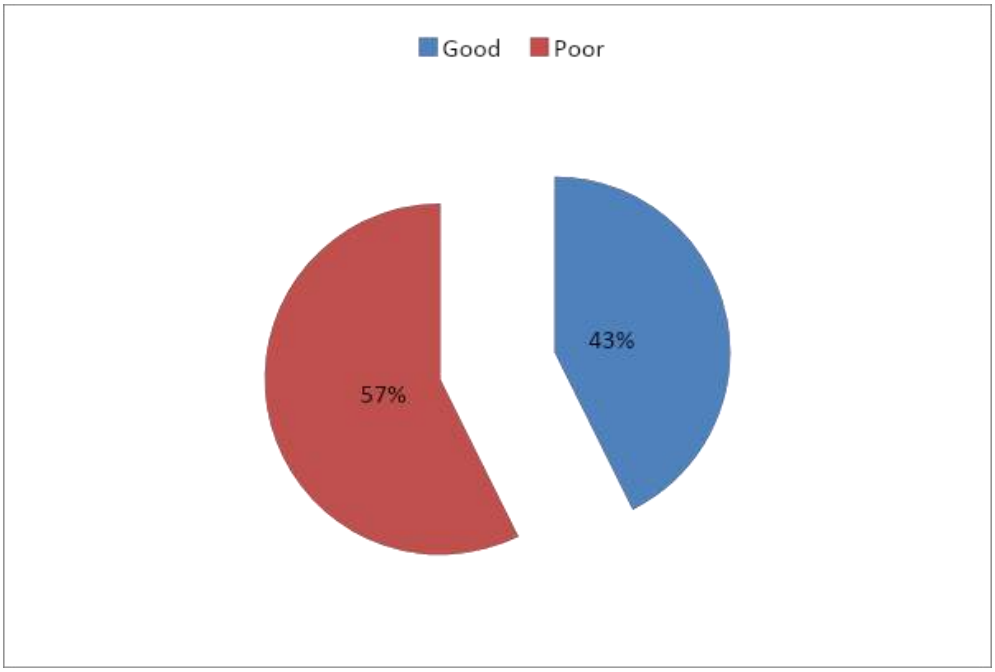


**Figure 13: Peripheral pulses at admission**

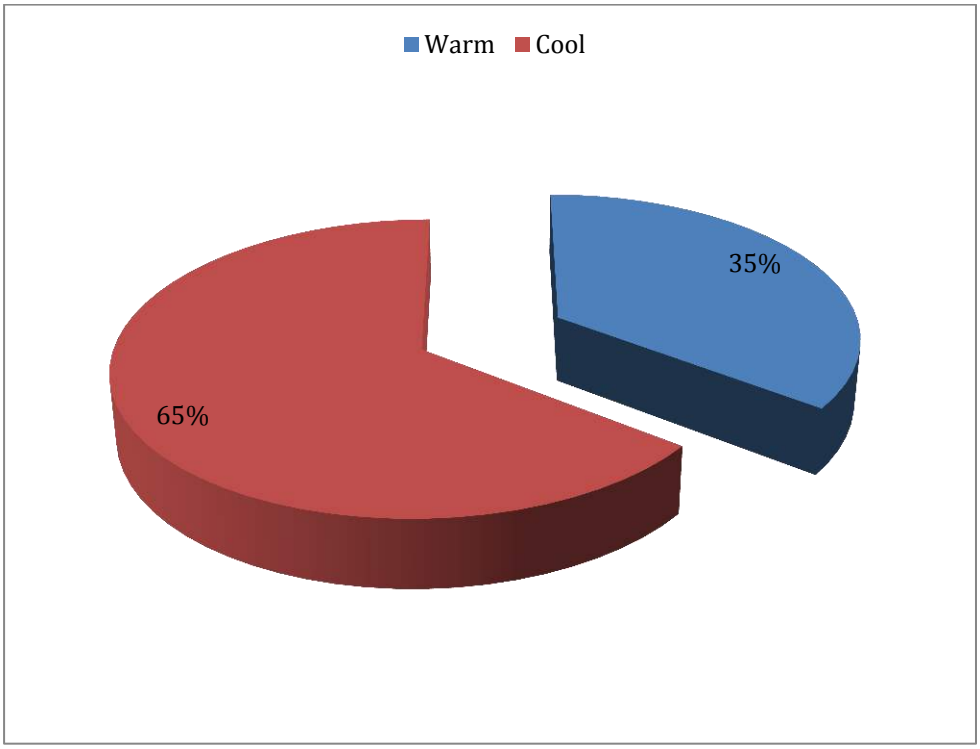


**Figure 14: Skin temperature at admission**

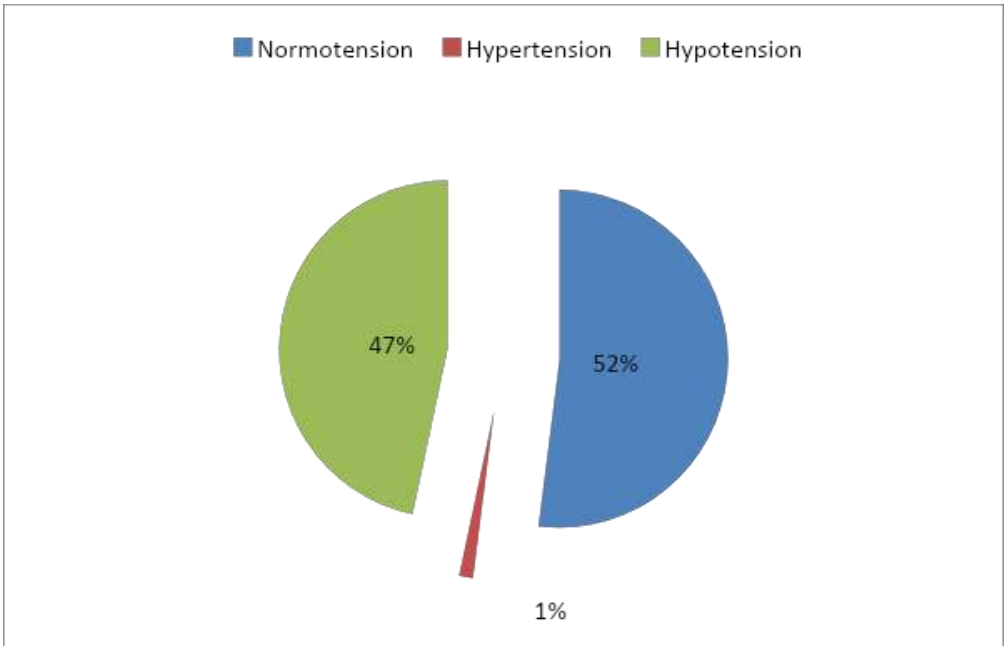


**Figure 15: BP Interpretation at admission**

- **Disability:** The neurological component of SOFA score is assessed by the Glasgow coma scale (GCS).

**Table 11: GCS at admission**

| GCS | No. of cases | Percentage |
|---|---|---|
| < 9 | 72 | 48.0% |
| 9-12 | 53 | 35.3% |
| 13-15 | 25 | 16.7% |
| **Total** | **150** | **100.0%** |

In our study of 150 patients, 72 patients (48%) had a GCS of <9, 53 patients (35.3%) had a GCS of 9 -12 and 25 patients (16.7%) had a GCS 13-15 at admission.

Most of the patients i.e. 72, constituting 48 % of the total 150 patients had a SOFA score of 8 or less than 8 at initial presentation.

- **Exposure :**

The presence of fever at admission is an inclusion criteria for our study. Patients were evaluated for the grade of fever at admission.

**Table 12: Temperature at admission**

| Temperature (◦ F) | No. of cases | Percentage |
|---|---|---|
| < 100 | **37** | 24.7% |
| 100-102 | **95** | 63.3% |
| 103-104 | **14** | 9.3% |
| > 104 | **4** | 2.7% |
| Total | 150 | 100.0% |

Thirty seven patients (24.7%) had temperature < 100º F, 95 patients (63.3%) had temperature recorded between 100-102º F, 14 patients (9.3%) had temperature 103-104º F and 4 patients (2.7%) had > 104º F temperature record at admission. As per our inclusion criteria, patients with fever at admission i.e. temperature above 100.4º F were included in the study but these 37 patients where temperature was recorded less than 100º F had a history of fever but had become afebrile by when they reached hospital.

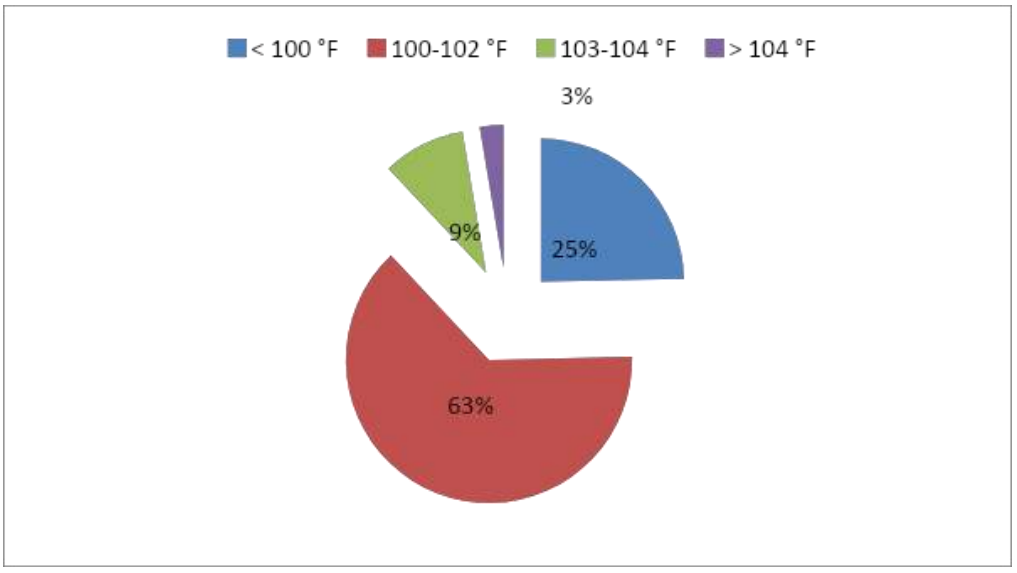


**Figure 16: Temperature at admission**

- **PRISM Score :**

PRISM II score was calculated for all the patients included in the study. The score was derived at the time of admission based on the 14 physiological variables namely Glasgow coma scale; pupillary reactions; systolic blood pressure (mmHg); diastolic blood pressure (mmHg); heart rate (beats per minute); respiratory rate (breaths per minute); PaCO2(mmHg); PaO2/ FiO2 (mmHg); coagulation profile; glucose (mg/dl); potassium (mEq/L); total bilirubin (mg/dl) ; calcium (mg/dl) and bicarbonate (mEq/L).

**Table 13: PRISM II at admission**

| Prism | No. of cases | Percentage |
|---|---|---|
| ≤ 10 | 52 | 34.7% |
| > 10 | 98 | 65.3% |
| Total | 150 | 100.0% |

Out of the total 150 patients, a PRISM score of ≤ 10 was present in 52 patients (34.7%) and 98 patients (65.3%) had a PRISM score of >10.

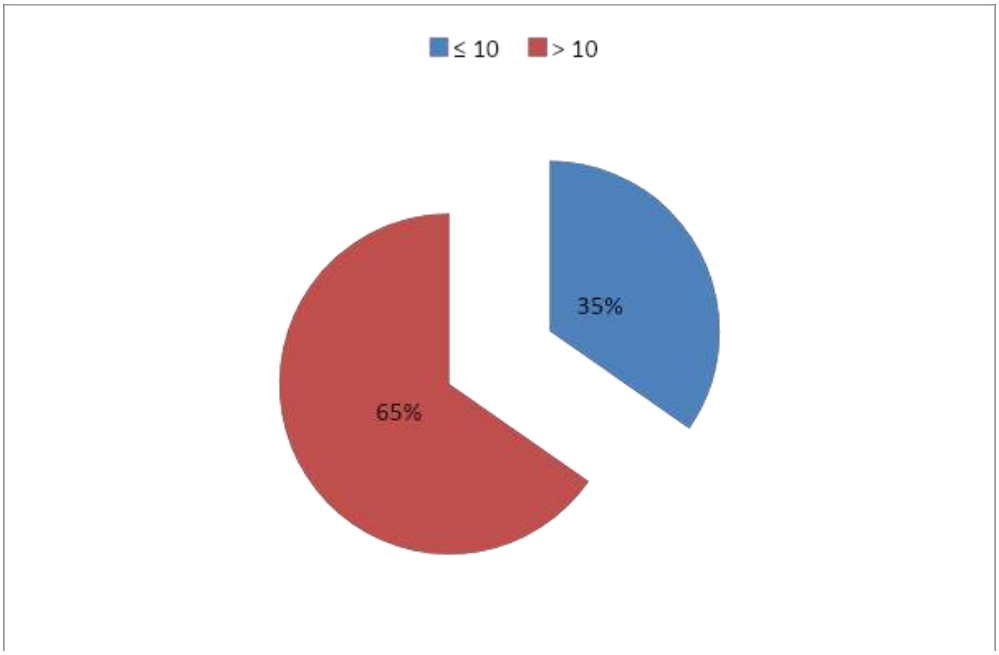


**Figure 17: PRISM score at admission**

The mean PRISM score in our study was 14.05 (S.D.8.401) and the median PRISM score was 13 with IQR 8-18.

**Table 14: System Wise Distribution**

| Primary System Involved | No. of cases | Percentage |
|---|---|---|
| Respiratory | 75 | 50.0% |
| GIT | 31 | 20.7% |
| CNS | 21 | 14.0% |
| Musculoskeletal | 10 | 6.7% |
| Endocrinology | 4 | 2.7% |
| Renal | 4 | 2.7% |
| CVS | 4 | 2.7% |
| Rheumatology | 1 | 0.7% |
| Total | 150 | 100.0% |

Only those patients who presented with fever along with primary diagnosis were included. Out of the total 150 patients, 75 patients (50.0%) presented with respiratory system as the primary abnormality, 31 patients (20.7%) presented with gastrointestinal abnormalities with intra-abdominal focus of sepsis , 21 patients (14%) had central nervous system involvement, 10 patients (6.7%) had musculoskeletal involvement, 4 patients (2.7%) had endocrinological abnormality, 4 patients (2.7%) had CVS involvement, 4 patients (2.7%) had Renal involvement and 1 patient (0.7%) had rheumatological abnormality.

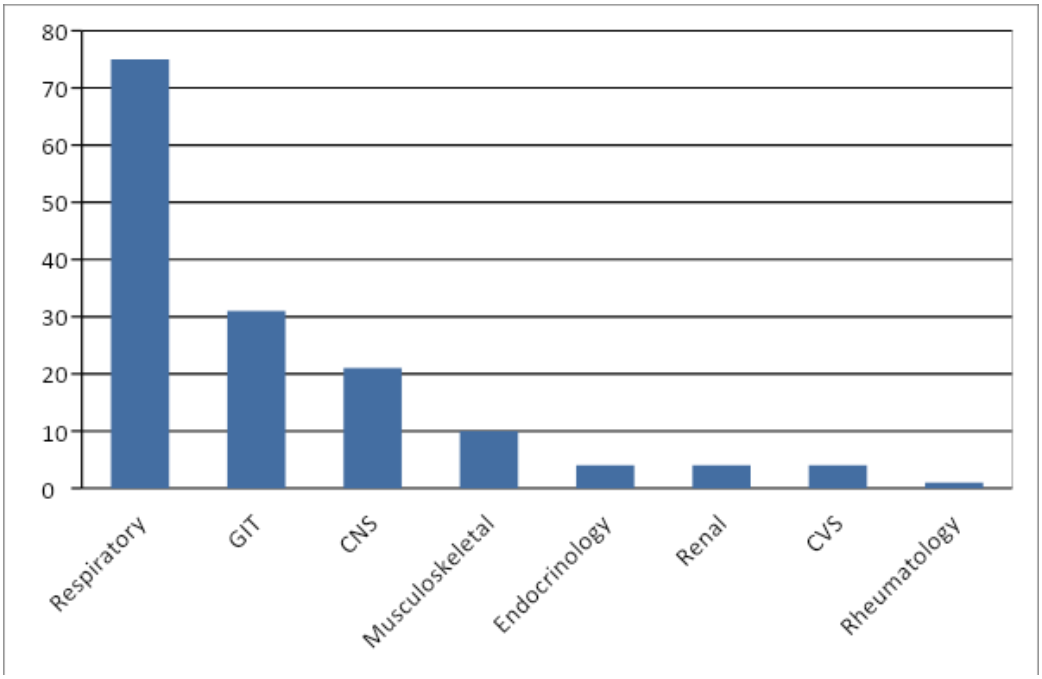


**Figure 18: System wise distribution**

In respiratory system as the primary system abnormality, 39 patients had acute bronchopneumonia, 5 had pulmonary tuberculosis, 1 patient each had bacterial tracheitis and membranous tonsillitis, 8 had swine flu, 2 patients had Diptheria, 1 patient had alleged hydrocarbon ingestion with ARDS, 1 patient had empyema, 2had pertussis like illness and 16 patients had sepsis with severe ARDS with respiratory failure.

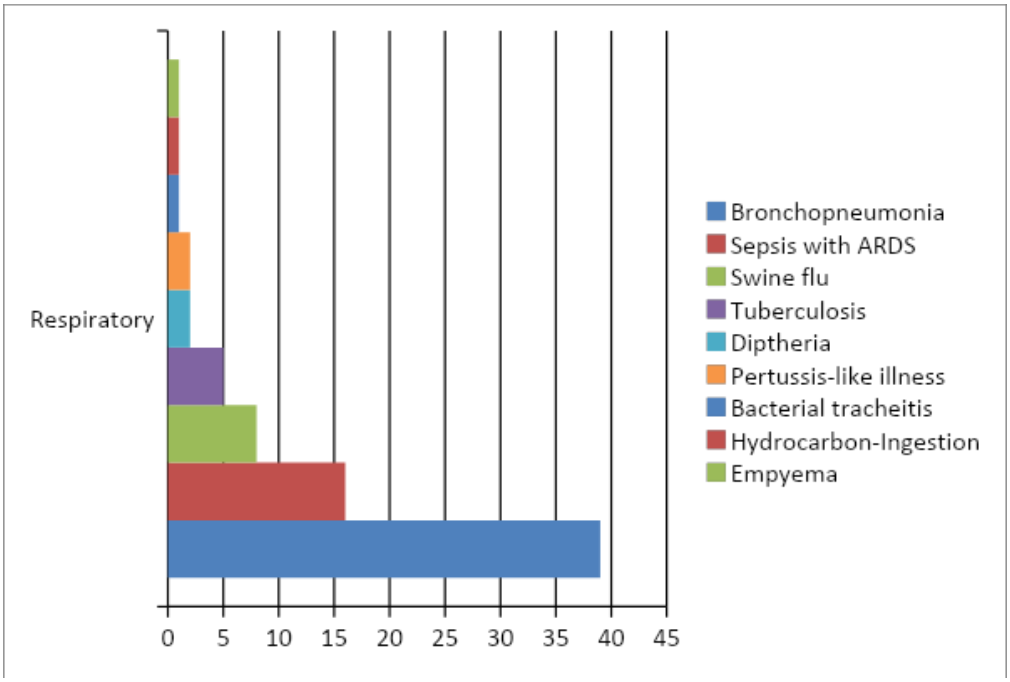


**Figure 19: Distribution of patients with Respiratory system involvement**

In GIT, 8 patients had Acute diarrheal disease, 11 patients had acute viral hepatitis with hepatic encephalopathy, 2 had acute pancreatitis, 5 had complicated enteric fever, 2 had acute liver failure, 1 patient had Intestinal obstruction, 1 patient had Liver abscess and 1 had portal hypertension with esophageal varices.

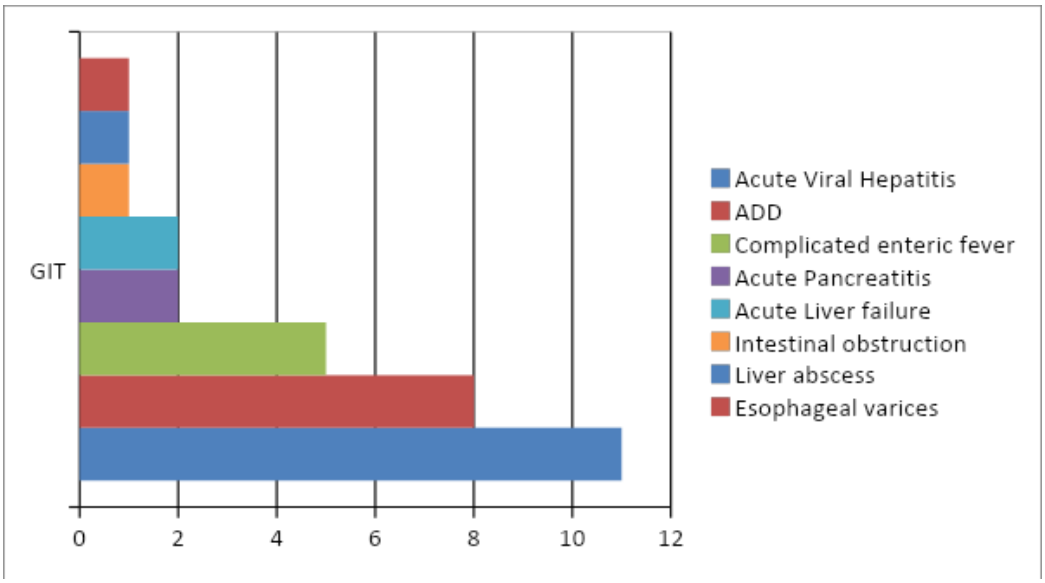


**Figure 20: Distribution of patients with Gastrointestinal system involvement**

In CNS as the primary system, 11 patients had acute meningoencephalitis, 5 had acute meningitis, 3 patient had ADEM, 1 had acute flaccid paralysis and 1 patient had stroke with right sided hemiparesis along with fever.

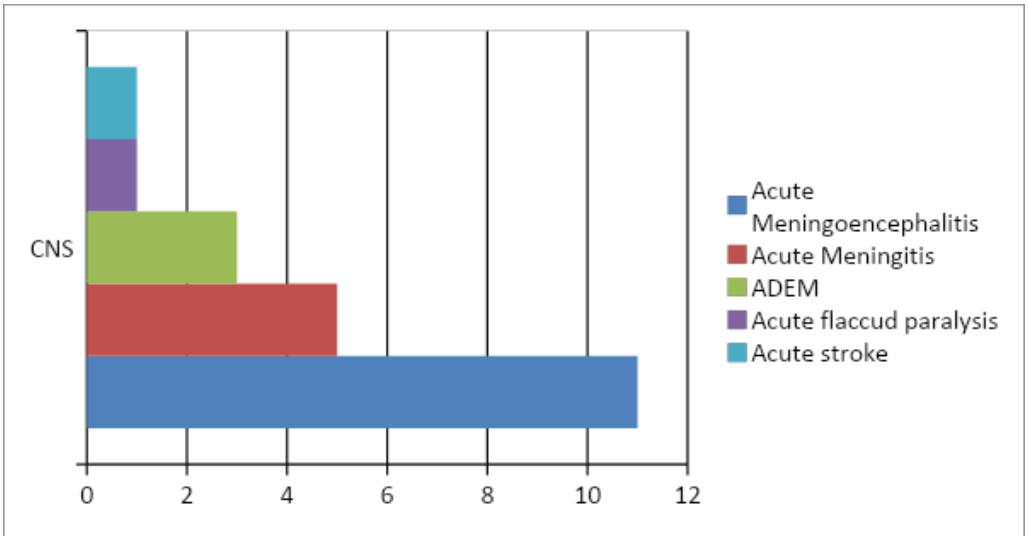


**Figure 21: Distribution of patients with Central nervous system involvement**

In musculoskeletal system abnormality, 5 patients had septic arthritis, 2 patients had Long-bone osteomyelitis, 2 patients had Gluteal abscess and 1 patient had cellulitis.

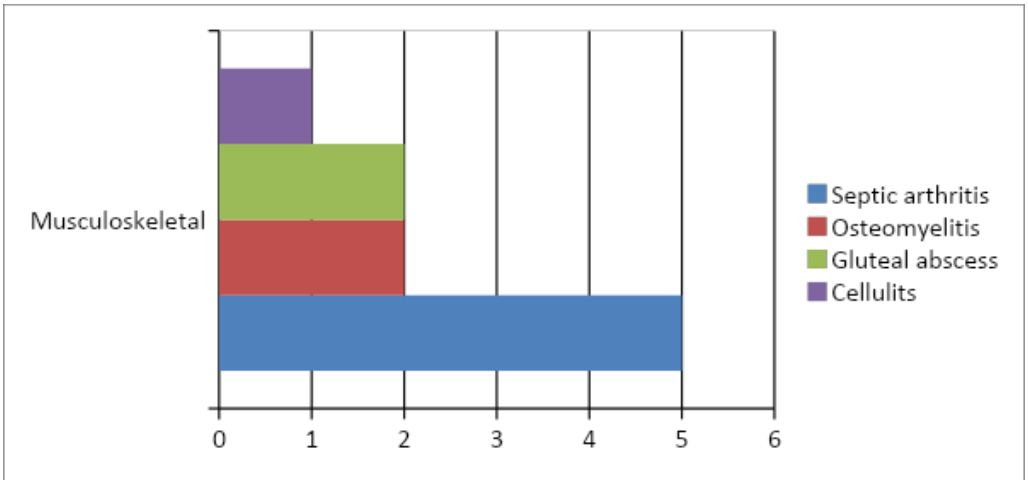


**Figure 22: Distribution of patients with Musculoskeletal involvement**

In endocrine system, 3 patients presented with Diabetic ketoacidosis and diagnosed as Diabetes Mellitus type 1 and 1 patient had thyrotoxic storm with thyroiditis.

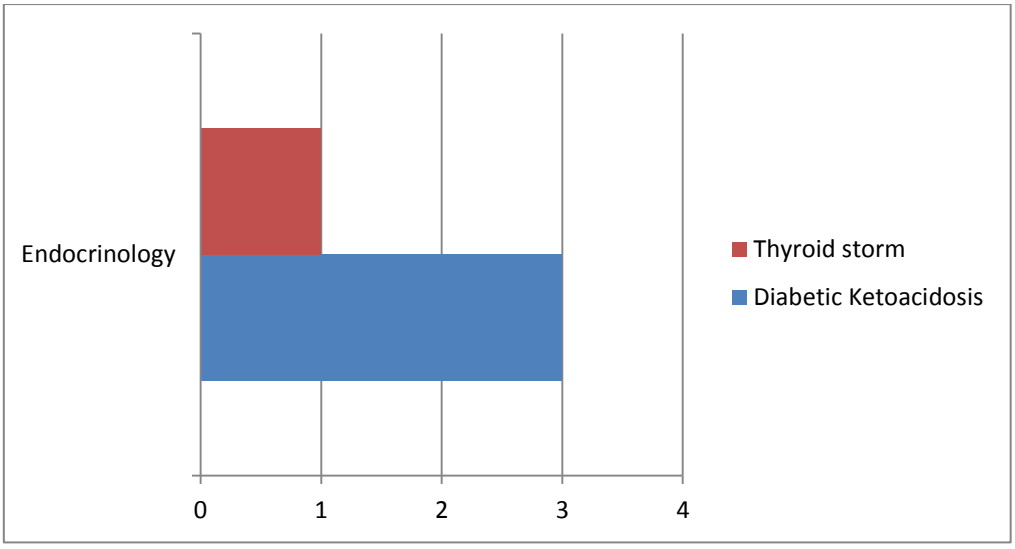


**Figure 23: Distribution of patients with Endocrinological involvement**

Four patients had renal system as the primary abnormality. 1 patient had urinary tract infection, 1 patient presented with Bilateral Nephrolithiasis with obstructive uropathy, 1 patient had End-stage renal disease and 1 patient had pelviureteric junction (PUJ)-obstruction.

In CVS, 3 patients presented with congenital heart diseases and 1 patient had Hypertrophic obstructive cardiomyopathy with Infective endocarditis.

One patient with primary rheumatological illness presented with Systemic lupus erythematosus.

## c. MORBIDITY :

Details of patients requiring ventilation, inotropic support, duration of stay and ultimate outcome were recorded and analysed.

### 1. Table 15: Oxygen requirement:

| Oxygen | No. of cases | Percentage |
|---|---|---|
| Yes | 141 | 94.0% |
| No | 9 | 6.0% |
| Total | 150 | 100.0% |

Out of the total 150 patients included in the study, 141 patients (94%) required oxygen support at admission and 9 patients (6%) did not require oxygen administration at admission.

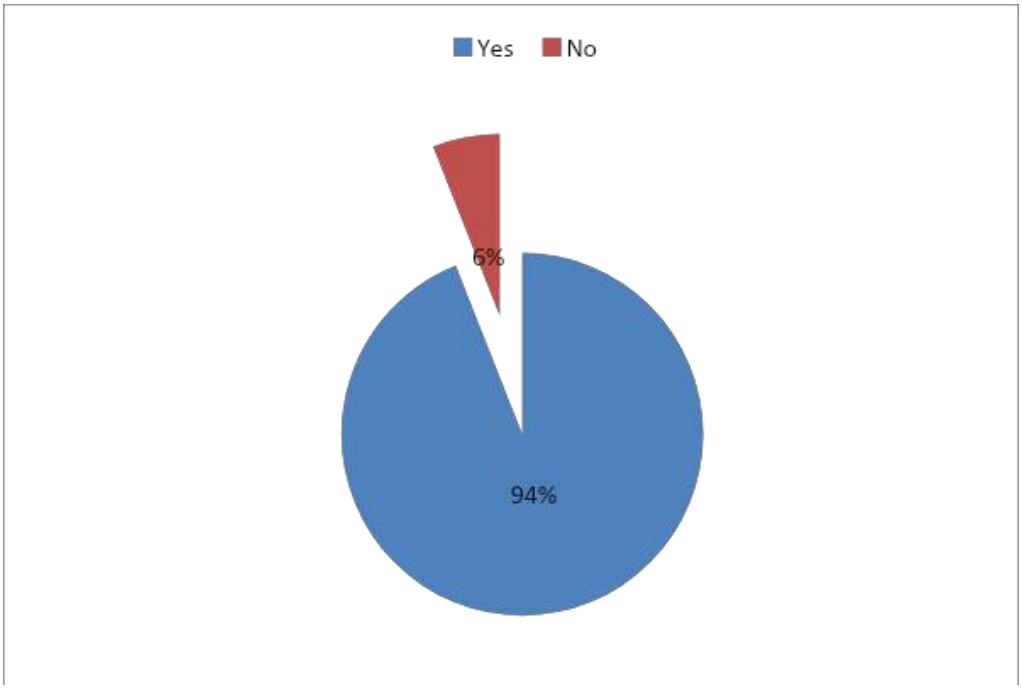


**Figure 24: Oxygen requirement at admission**

## 2. Table 16: Ventilation Status

| Ventilation | No. of cases | Percentage |
|---|---|---|
| **Ventilation** | | |
| Yes | 124 | 82.7% |
| No | 26 | 17.3% |
| Total | 150 | 100.0% |
| **Invasive/ Non Invasive** | | |
| Invasive | 82 | 66.1% |
| Non invasive | 42 | 33.9% |
| Total | 124 | 100.0% |

In this study, out of 150 patients, 124 patients (82.7%) required ventilation for respiratory support and 26patients (17.3%) did not require any form of ventilation. Out of the 124 patients requiring ventilation, 82 patients (66.1%) required invasive ventilation whereas 42 patients (33.9%) required non-invasive form of ventilation (which included BiPAP, Indigenous CPAP and HFNC). Total 72 patients required non-invasive ventilation, which includes 42 patients who remained on NIV-support and the rest 30 patients who had failure of non-invasive ventilation and were subsequently intubated.

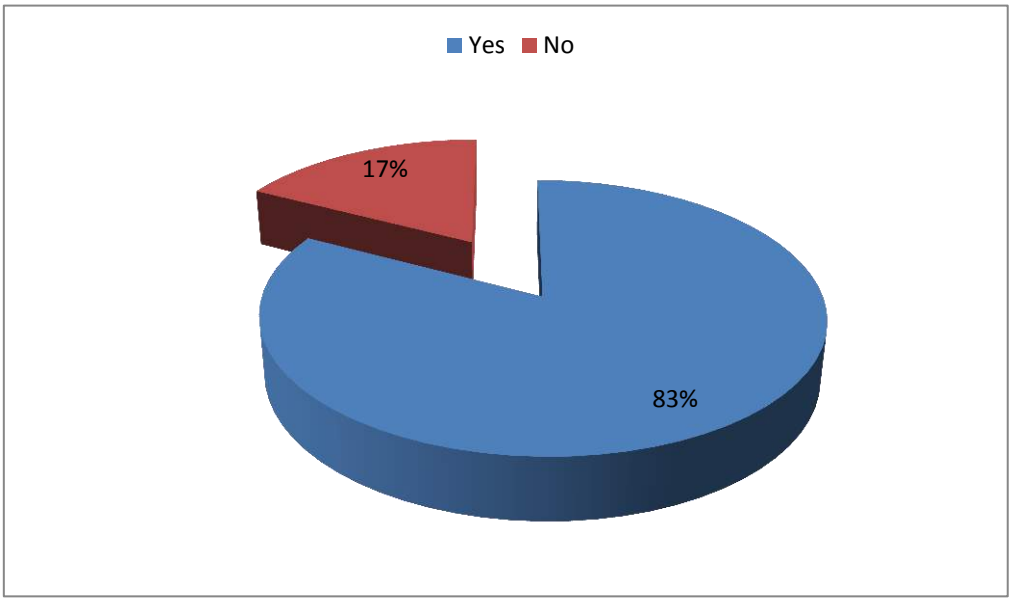


**Figure 25: Requirement of ventilation**

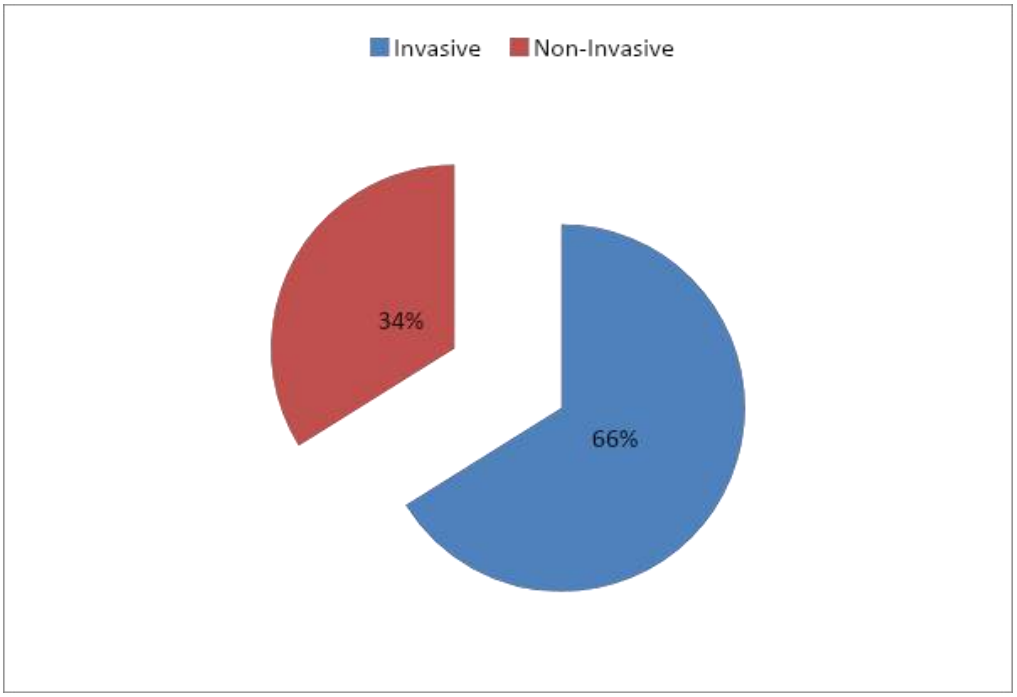


**Figure 26: Invasive versus non-invasive ventilation**

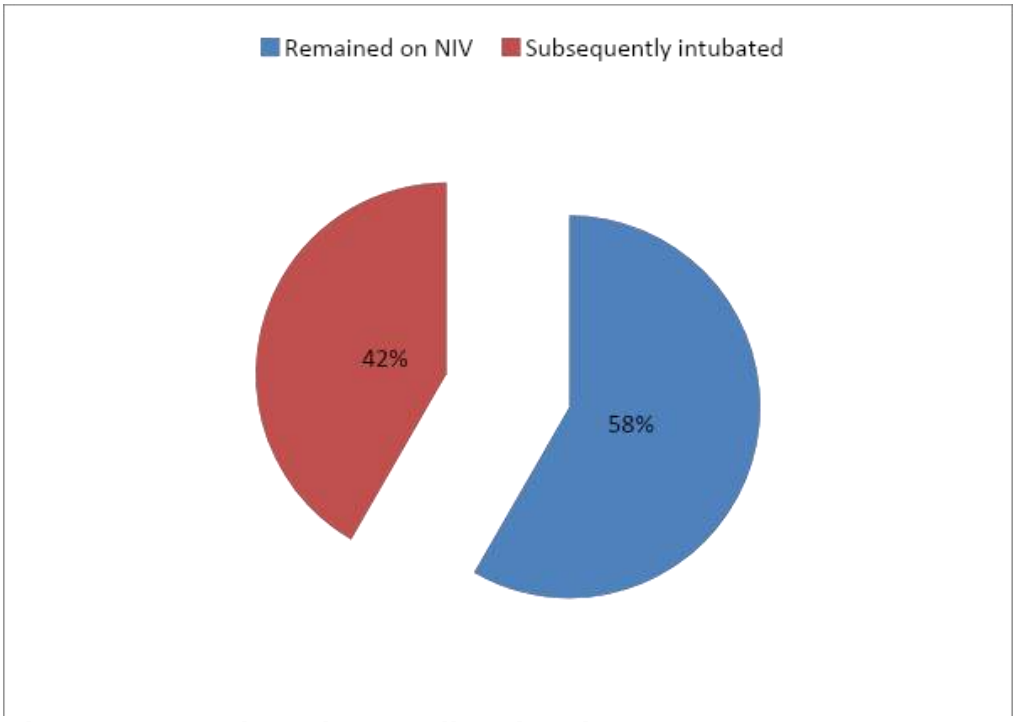


**Figure 27: Non-invasive ventilated patient outcome**

### 3. Table 17: Inotrope requirement

| Inotropes | No. of cases | Percentage |
|---|---|---|
| Yes | 103 | 68.7% |
| No | 47 | 31.3% |
| **Total** | **150** | **100.0%** |

In our study, out of 150 patients, 103 patients (68.7%) required inotropes for management of shock whereas 47 patients (31.3%) did not require any inotropic agent. Out of the 103 patients who required Inotropic support, 29 patients required 1 inotrope, 38 patients required 2 inotropes, 13 patients required 3 inotropes and 23 patients required >3 inotropes.

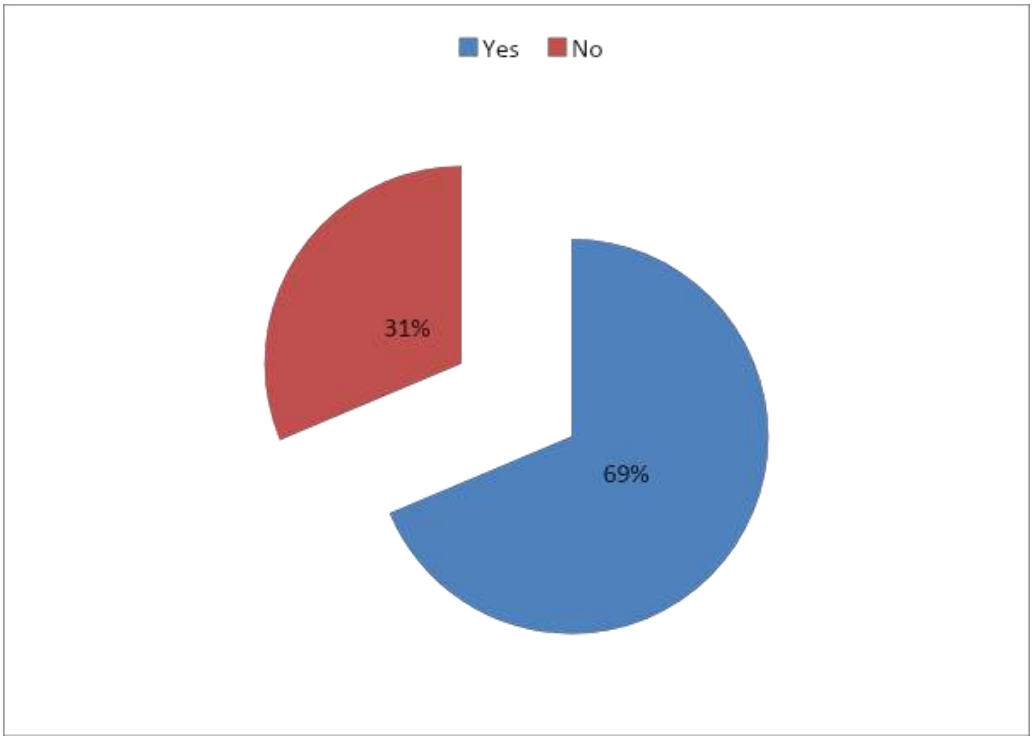


**Figure 28: Inotrope requirement**

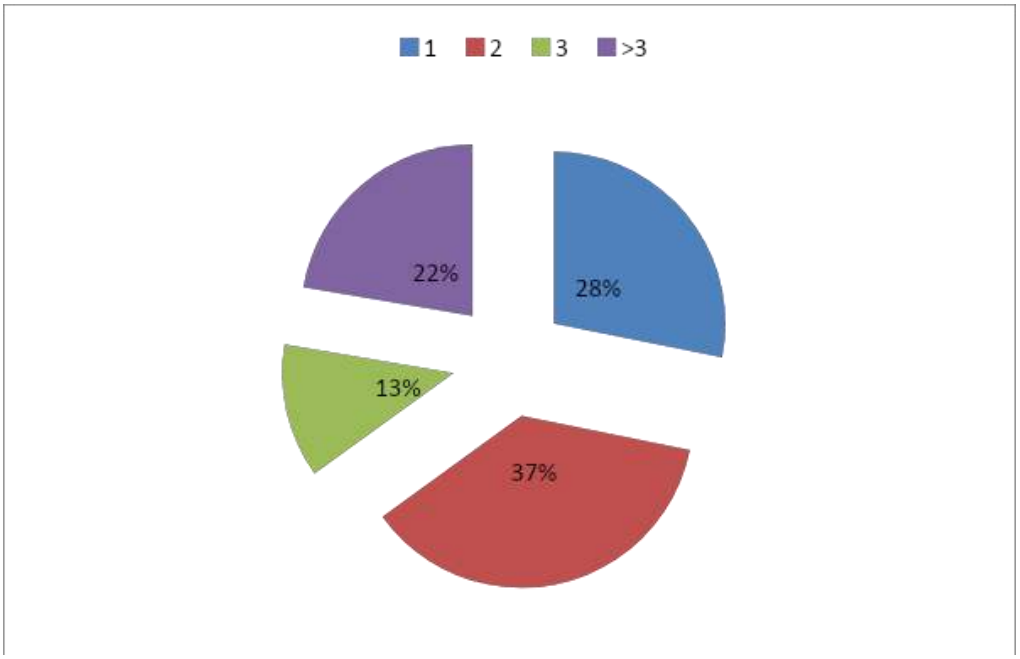


**Figure 29: Number of Inotropes required**

**4. Table 18: Duration of stay**

| Duration of stay group | No. of cases | Percentage |
|---|---|---|
| < 3 days | 28 | 18.7% |
| 3-7 days | 85 | 56.7% |
| 7-14 days | 24 | 16.0% |
| > 14 days | 13 | 8.7% |
| Total | 150 | 100.0% |

Total 150 patients were included in the study. Twenty eight patients (18.7%) had a stay of < 3 days and 85 patients (56.7%) had a stay of 3-7 days in PICU. Twenty four patients (16%) had a stay of 7- 14 days and 13 patients (8.7%) had a duration of stay of >14 days.

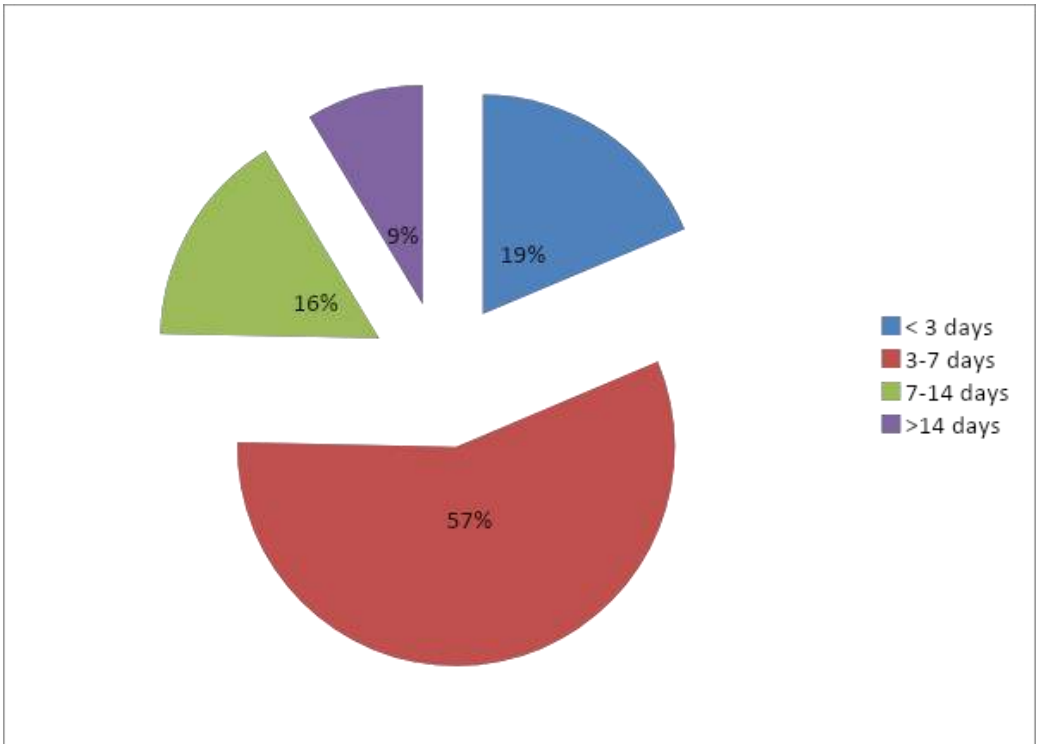


**Figure 30: Duration of stay in PICU**

The mean duration of stay was 6.81 days (S.D. 6.871). The median duration of stay was 5 days (IQR 3 – 7.25 days). The minimum duration of stay was 1 day and maximum was 38 days in our study.

**d. OUTCOME:**

**Table 19: Final outcome**

| Outcome | No. of cases | Percentage |
|---|---|---|
| Discharged | 109 | 72.7% |
| Died | 32 | 21.3% |
| DAMA | 9 | 6.0% |
| **Total** | **150** | **100.0%** |

In our study, out of 150 patients, 109 patients (72.7%) were discharged from ICU, 32 patients (21.3%) died and 9 patients (6.0%) went DAMA (discharged against medical advice).

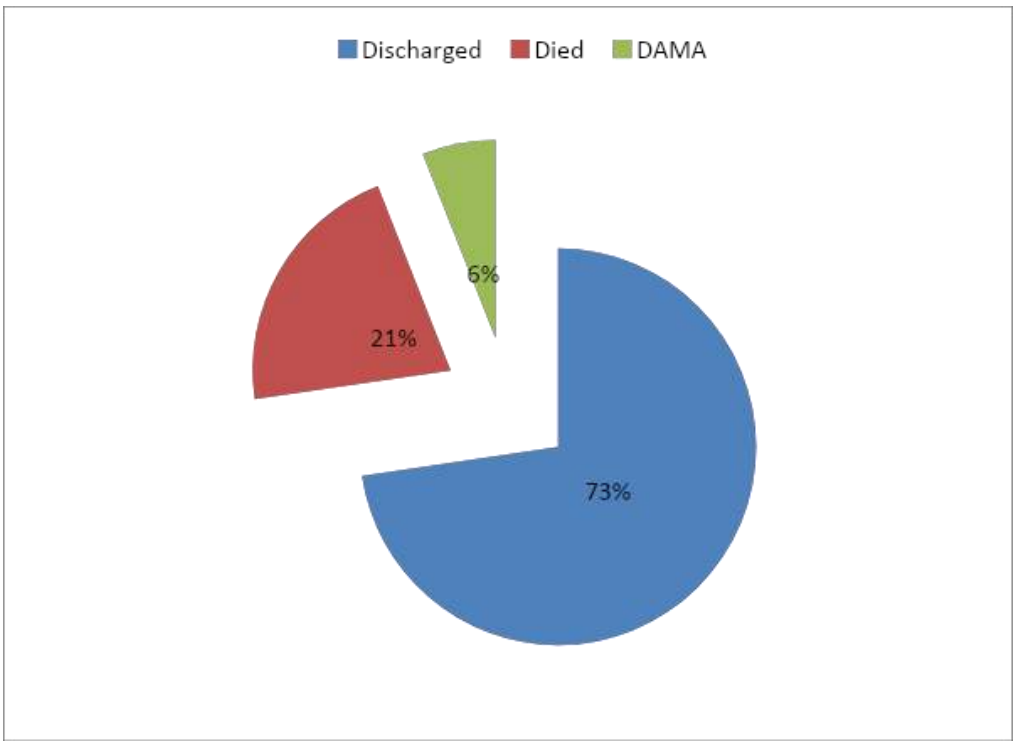


**Figure 31: Final outcome**

## B. COMPARISON OF OUTCOME WITH CLINICODEMOGRAPHIC PARAMETERS

**Table 20: Effect of Age on outcome**

| | | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Age group | 1 month-1 year | 20 | 77% | 5 | 19% | 1 | 4% | 26 | 1.022 | 0.985 |
| | 1 year-10year | 29 | 74% | 7 | 18% | 3 | 8% | 39 | | |
| | 5 year-10year | 27 | 71% | 9 | 24% | 2 | 5% | 38 | | |
| | > 10 year | 33 | 70% | 11 | 23% | 3 | 6% | 47 | | |

Out of the total 150 patients included in the study, 26 patients belonged to the age-group of 1 month – 1 year. Out of these 26 patients, 20 (77%) were discharged, 5 patients (19%) died and 1 patient went DAMA (4%). Thirty nine patients belonged to the age-group of 1 – 10 years, out of which 29 patients (74%) were discharged, 7 died (18%) and 3 patients (8%) went DAMA. In the age-group of 5- 10 years, there were 38 patients out of which 27 patients (71%) were discharged, 9 patients (24%) died and 2 patients (5%) went DAMA. Forty seven patients belonged to the age-group of > 10 years out of which 33 patients (70%) were discharged, 11 patients (23%) died and 3 patients (6%) went DAMA. The study of effect of age on the outcome showed a p-value of 0.985 which is insignificant (<0.05).

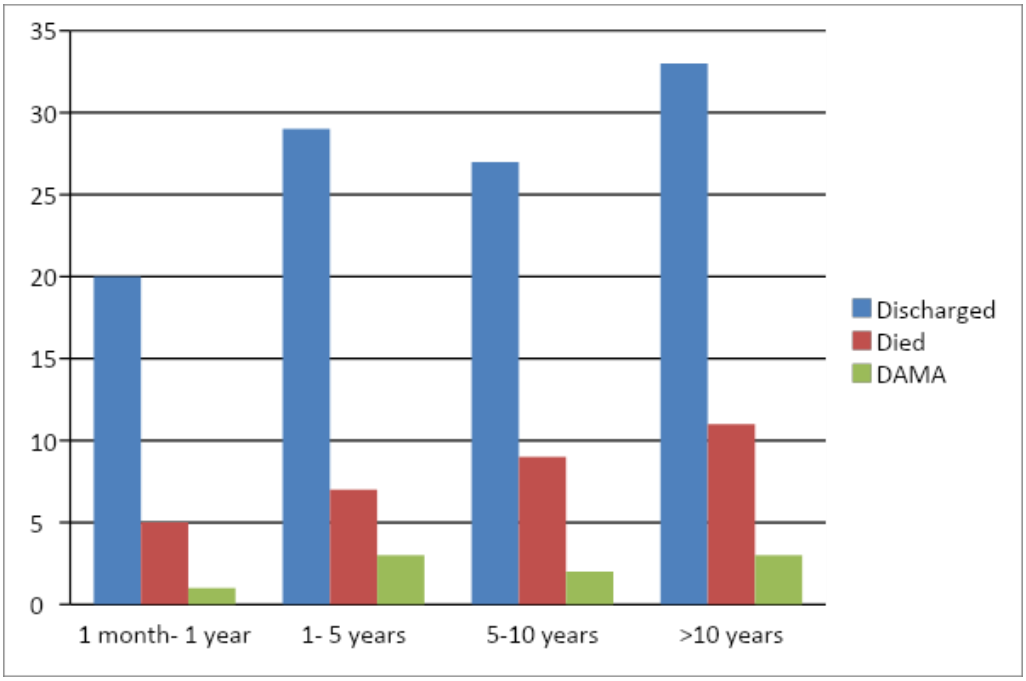


**Figure 32: Effect of age on outcome**

**Table 21: Mean age in Died and Discharged patients**

| | Discharge (n= 109) | | Died (n= 32) | | t | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | Lower | Upper |
| Age (Months) | 79.78 | 65.39 | 88.03 | 64.57 | -0.629 | 0.530 | -34.17 | 17.67 |

Out of the total 150 patients in the study population, 109 patients were discharged and 32 patients died. Nine patients went DAMA either due to financial crisis or poor outcome.Survival was determined after exclusion of the patients who went DAMA as the outcome could not be assessed and the main reason of discharge was financial constraints (6 out of 9 patients). The mean age in the discharged patients was 79.78 months (S.D. 65.39) and the mean age in the patients who died was 88.03 (S.D. 64.57). In our study, the patient age did not correlate with the outcome as the correlation was statistically insignificant (p-value 0.530).

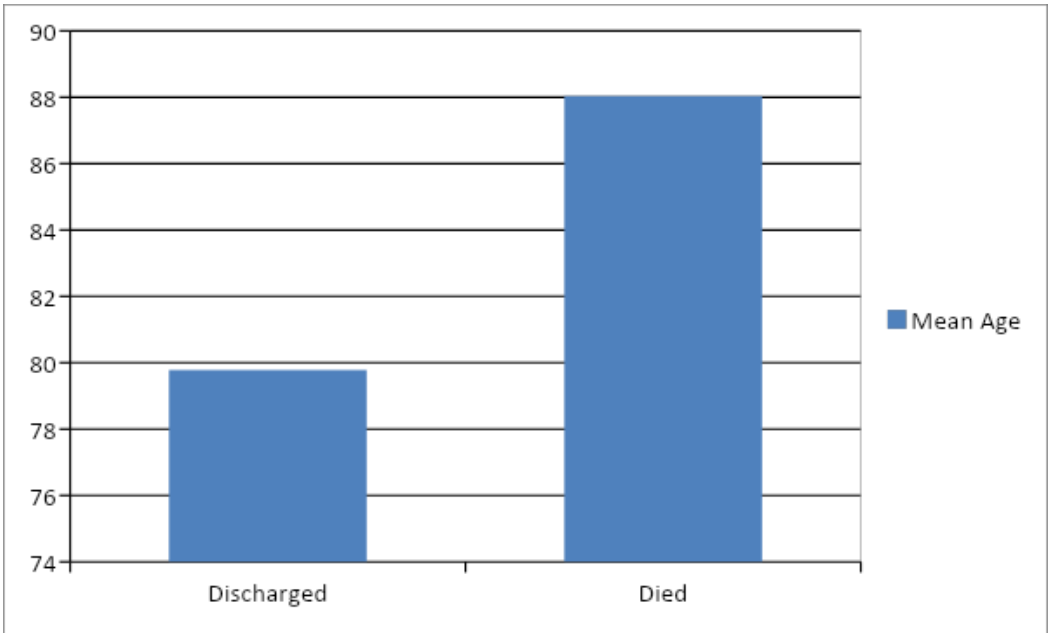


**Figure 33: Mean age in discharged and died patients**

**Table 22: Effect of gender on outcome**

| | | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Gender | F | 42 | 70% | 13 | 22% | 5 | 8% | 60 | 1.011 | 0.603 |
| | M | 67 | 74% | 19 | 21% | 4 | 4% | 90 | | |

In our study of 150 patients, 60 patients were females and 90 patients were males. Out of the 60 patients of the female study population, 42 patients (70%) were discharged, 13 patients (22%) died and 5 patients (8%) went DAMA. In the male study population, out of total 90 patients, 67 patients (74%) were discharged, 19 patients (21%) died and 4 patients (4%) went DAMA. The relation of gender with final outcome shows a p value of 0.603 which is insignificant (>0.05).

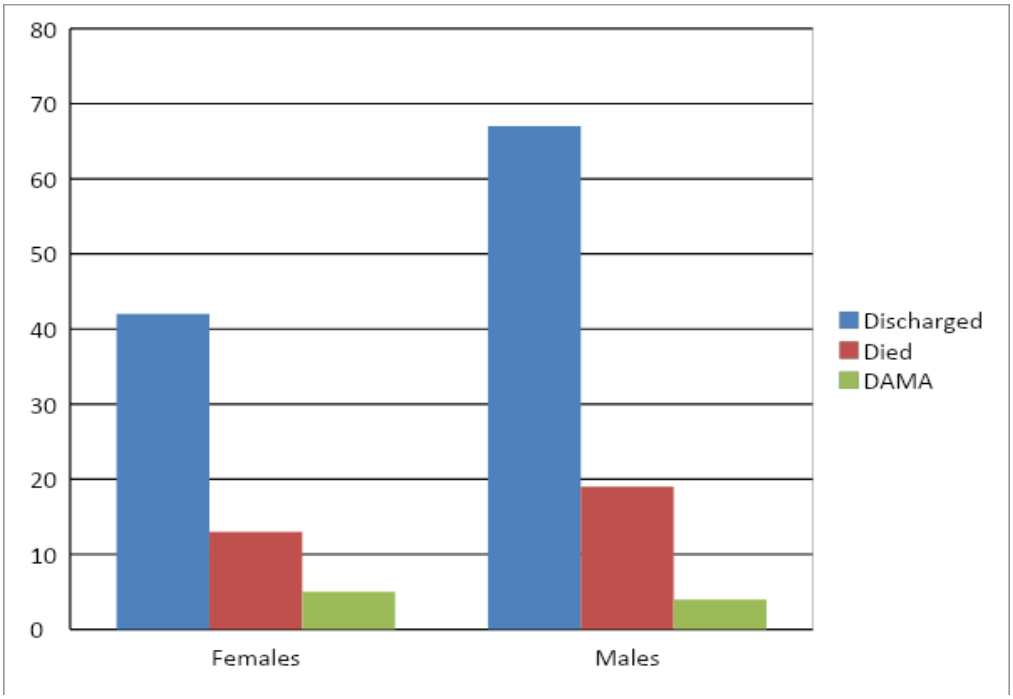


**Figure 34: Effect of Gender on outcome**

**Table 23: Effect of Respiratory rates at admission on outcome**

| RR Interpretation | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Apnea | 2 | 100 % | 0 | 0% | 0 | 0% | 2 | 18.593 | 0.005 |
| Bradypnea | 6 | 43% | 8 | 57% | 0 | 0% | 14 | | |
| Normal | 27 | 93% | 1 | 3% | 1 | 3% | 29 | | |
| Tachypnea | 74 | 70% | 23 | 22% | 8 | 8% | 105 | | |

Age-adjusted cut-offs have been described for all age groups in the materials and methods. We studied the impact of Respiratory rates at admission on the patient outcome. Out of the total 150 patients, 27 patients presented with normal respiratory rates at admission and 27 patients (93%) were discharged, 1 patient (3%) died and 1 patient (3%) went DAMA. Two patients presented in a state of apnea both were discharged (100%). Fourteen patients presented with bradypnea at admission out of which 6 patients (43%) got discharged and rest 8 patients (57%) died. Out of 150 patients, 105 patients presented with tachypnea out of which 74 (70%) got discharged, 23 patients (22%) died and 8 patients (8%) went DAMA. The p-value of the effect of respiratory rates at admission on the outcome was 0.005 which is significant(<0.05).

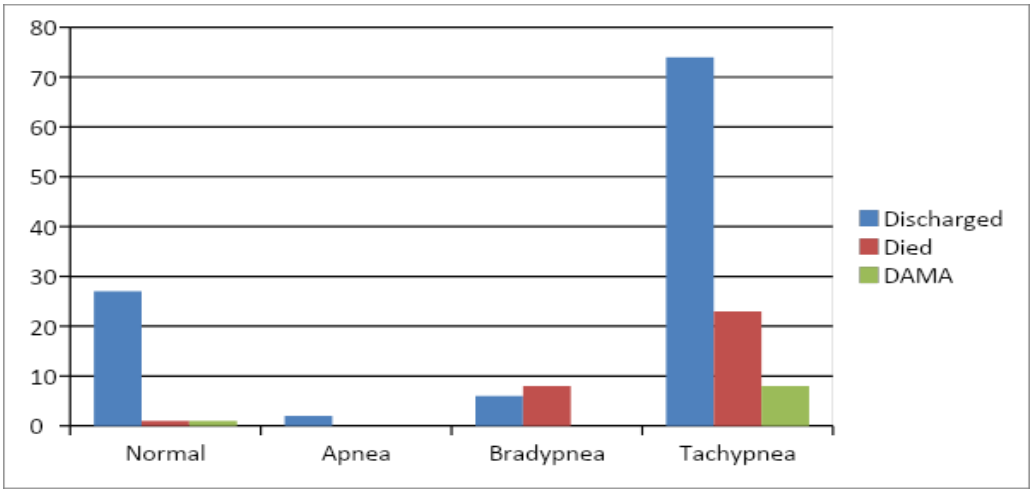


**Figure 35: Effect of respiratory rates on outcome**

**Table 24: Effect of SpO2 at admission on outcome**

| | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| SPO2 group | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| < 90% | 50 | 63% | 23 | 29% | 6 | 8% | 79 | 9.751 | 0.045 |
| 90-95% | 27 | 77% | 7 | 20% | 1 | 3% | 35 | | |
| > 95% | 32 | 89% | 2 | 6% | 2 | 6% | 36 | | |

Out of the total 150 study population, 70 patients presented with SpO2 <90% out of which 50 patients (63%) were discharged, 23 patients died (29%) and 6 patients (8%) went DAMA. Thirty-five patients had SpO2 90-95% at admission and out of these, 27 patients (77%) were discharged, 7 patients (20%) died and 1 patient (3%) went DAMA. There were 36 patients who presented with SpO2 more than 95% and 32 patients (89%) out of these were discharged, 2 patients (6%) died and 2 patients (6%) went DAMA. The p-value of the effect of SpO2 at admission was derived which was 0.045 and is significant (<0.05).

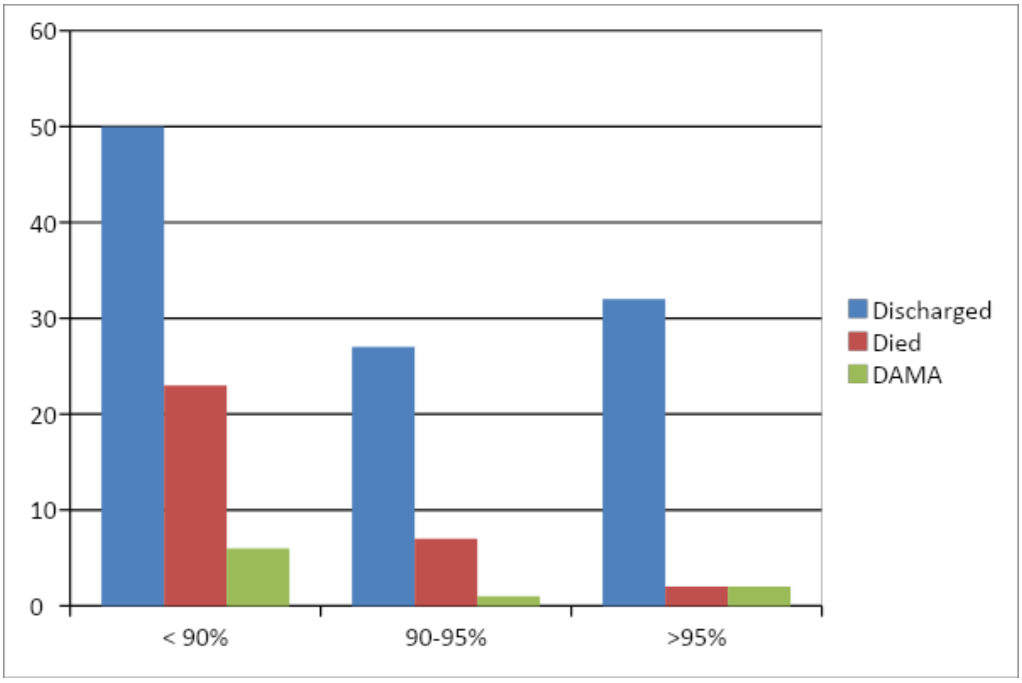


**Figure 36: Effect of SpO2 at admission on outcome**

**Table 25: Effect of Heart rate at admission on outcome**

| | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| HR Interpretation | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Arrest | 2 | 100 % | 0 | 0% | 0 | 0% | 2 | 6.652 | 0.354 |
| Bradycardia | 2 | 50% | 2 | 50% | 0 | 0% | 4 | | |
| Normal | 45 | 80% | 7 | 13% | 4 | 7% | 56 | | |
| Tachycardia | 60 | 68% | 23 | 26% | 5 | 6% | 88 | | |

Out of total 150 patients, 56 patients presented with normal respiratory rates at admission and 45 patients (80%) out of these were discharged, 7 patients (13%) died and 4 patients (7%) went DAMA. Two patients presented in arrest and both were later discharged (100%). Four patients presented with bradycardia out of which 2 patients (50%) were discharged and 2 patients (50%) died. Eighty-eight patients presented with tachycardia at admission out of which 60 patients (68%) were discharged, 23 patients (26%) died and 5 patients (6%) went DAMA. Total 92 patients presented with abnormal heart rate as per age (brady or tachycardia) and mortality was 27.2%, 56 had normal heart rate with mortality of 13%, though there was more mortality in children with abnormal heart rate at admission (more than double) but this difference was not statistically significant. The effect of heart rate at admission on outcome had a p-value of 0.354 which is insignificant.

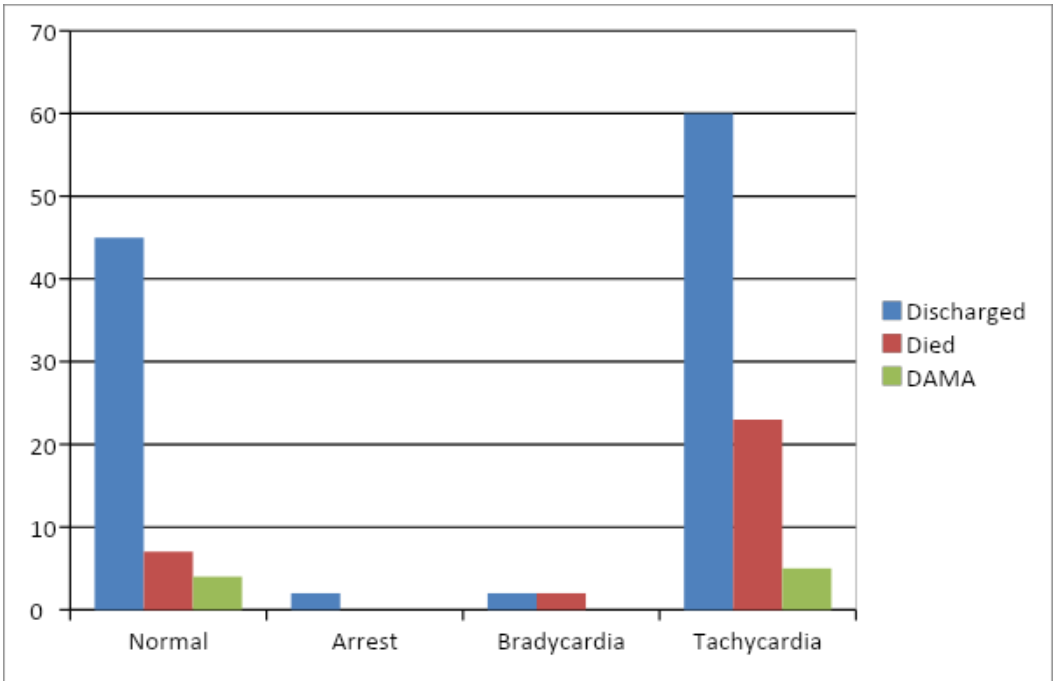


**Figure 37: Effect of Heart rate at admission on Outcome**

**Table 26: Effect of BP at admission and outcome**

| | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| BP Interpretation | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Hypertension | 1 | 50% | 0 | 0% | 1 | 50% | 2 | 16.208 | 0.003 |
| Hypotension | 43 | 61% | 22 | 31% | 5 | 7% | 70 | | |
| Normal | 65 | 83% | 10 | 13% | 3 | 4% | 78 | | |

We compared the Blood pressure at admission and the patient outcome. Out of the total 150 patients, 78 patients had a normal BP at presentation and 65 patients (83%) out of these were discharged, 10 patients (13%) died and 3 patients (4%) went DAMA.

Two patients presented with hypertension at admission and 1 patient (50%) was discharged and the other one (50%) went DAMA. Seventy patients presented with hypotension at admission out of which 43 patients (61%) were discharged, 22 patients (31%) died and 5 patients went DAMA. The comparison of BP at admission and the outcome had a p-value of 0.003 which is significant (<0.05).

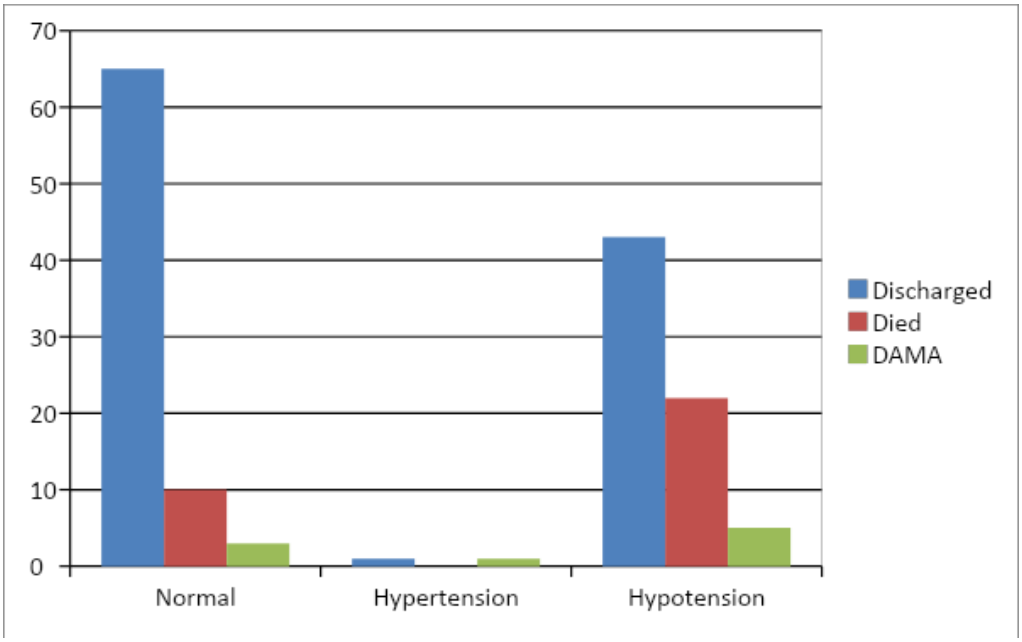


**Figure 38: Effect of BP at admission on outcome**

**Table 27: Effect of GCS at admission on outcome**

| GCS | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| < 9 | 49 | 68% | 20 | 28% | 3 | 4% | 72 | 4.767 | 0.312 |
| 9-12 | 40 | 75% | 8 | 15% | 5 | 9% | 53 | | |
| 13-15 | 20 | 80% | 4 | 16% | 1 | 4% | 25 | | |

Out of the total 150 patients, 72 patients had a GCS of equal to or less than 8 at admission out of which 49 patients (68%) were discharged, 20 patients (28%) died and 3 patients (4%) went DAMA. There were 53 patients who presented with a GCS of 9-12 at admission out of which 40 patients (75%) were discharged, 8 patients (15%) died and 5 patients (9%) went DAMA. Twenty five patients presented with a GCS of 13-15, out of which 20 patients (80%) were discharged, 4 patients (16%) died and 1 patient (4%) went DAMA. The relation of GCS at admission and the outcome had a p-value of 0.312 which is insignificant.

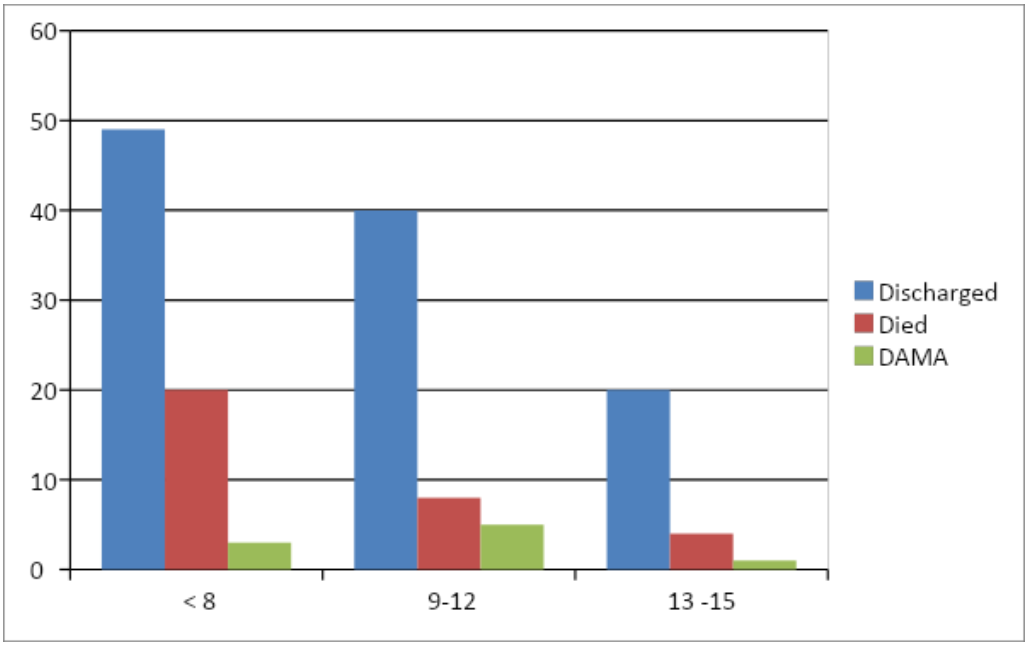


**Figure 39: Effect of GCS at admission on outcome**

**Table 28: Primary system involvement and outcome**

| Primary System Involved | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| CNS | 17 | 81% | 2 | 10% | 2 | 10% | 21 | 16.929 | 0.260 |
| CVS | 1 | 25% | 3 | 75% | 0 | 0% | 4 | | |
| Endocrinology | 4 | 100% | 0 | 0% | 0 | 0% | 4 | | |
| GIT | 23 | 74% | 7 | 23% | 1 | 3% | 31 | | |
| Musculoskeletal | 9 | 90% | 1 | 10% | 0 | 0% | 10 | | |
| Renal | 3 | 75% | 0 | 0% | 1 | 25% | 4 | | |
| Respiratory | 51 | 68% | 19 | 25% | 5 | 7% | 75 | | |
| Rheumatology | 1 | 100% | 0 | 0% | 0 | 0% | 1 | | |

We studied the relation of the primary system involved with the patient outcome. Out of the total 150 patients, 21 patients had CNS as the primary system involved, out of which 17 patients (81%) were discharged, 2 patients (10%) died and 2 patients (10%) went DAMA. There were 4 patients with CVS involvement out of which 1 patient (25%) was discharged and 3 patients (75%) died. Four patients presented with Endocrine system involvement and all 4 patients (100%) were discharged. Thirty one patients had GIT as the primary system involved, out of which 23 patients (74%) were discharged, 7 patients (23%) died and 1 patient (3%) went DAMA. There were 10 patients with musculoskeletal involvement out of which 9 patients (90%) were discharged and 1 patient (10%) died. Four patients presented with Renal system involvement out of which 3 patients (75%) were discharged and 1 patient (25%) went DAMA. Seventy five patients presented with Respiratory system involvement out of which 51 patients (68%) were discharged, 19 patients (25%) died and 5 patients (7%) went DAMA. One patient with rheumatologic involvement was discharged (100%). Though mortality was highest in children with underlying cardiac abnormality with sepsis but this difference was not statistically significant.

The relation of primary system involvement and the outcome had a p-value of 0.260 which is insignificant.

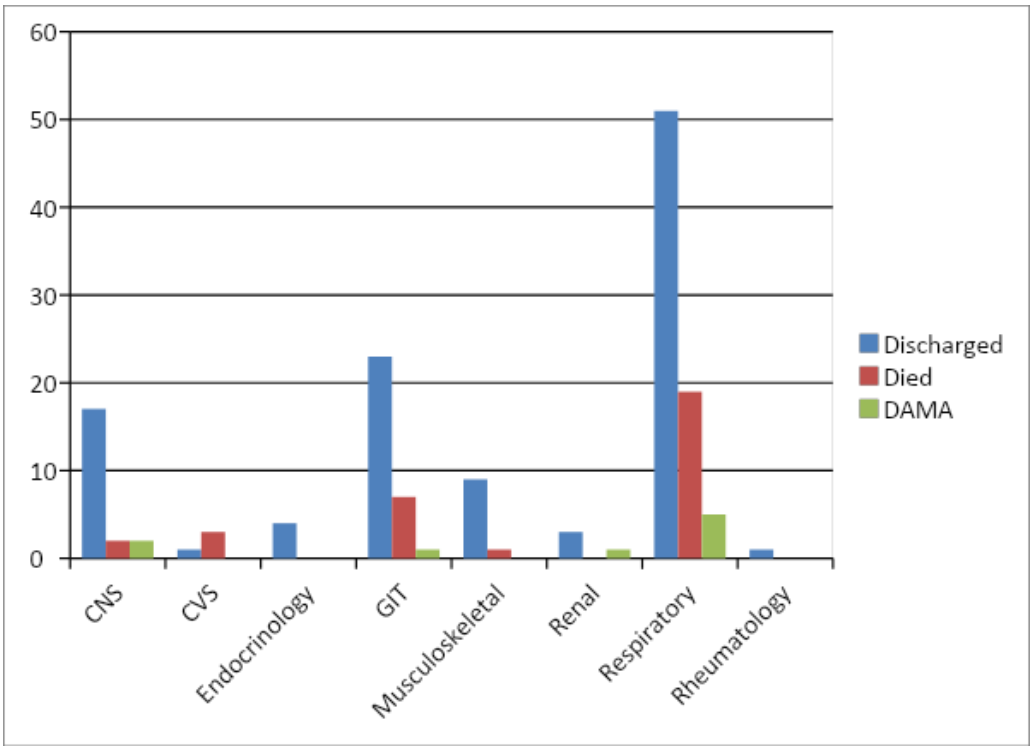


**Figure 40: Primary system involvement and outcome**

**Table 29: Laboratory parameters and outcome**

| | Discharge (n= 109) | | Died (n= 32) | | DAMA (n= 9) | | F | p-value | Discharge vs. Died |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | | p-value |
| pH | 7.27 | 0.15 | 7.15 | 0.15 | 7.19 | 0.15 | 9.232 | 0.000 | 0.000 |
| TSB | 2.03 | 6.55 | 2.34 | 6.19 | 0.66 | 0.31 | 0.254 | 0.776 | 0.807 |
| Platelets | 224.01 | 197.65 | 136.91 | 129.23 | 255.44 | 195.17 | 3.060 | 0.050 | 0.021 |
| Creatinine | 0.77 | 0.97 | 1.55 | 1.66 | 1.19 | 1.02 | 5.736 | 0.004 | 0.001 |
| Lactate | 3.49 | 2.27 | 5.36 | 3.32 | 3.39 | 2.31 | 6.928 | 0.001 | 0.000 |
| C-reactive protein | 106.94 | 106.95 | 162.68 | 128.46 | 90.61 | 79.04 | 3.434 | 0.035 | 0.013 |
| RBS | 118.50 | 84.48 | 104.59 | 65.85 | 93.11 | 40.98 | 0.718 | 0.490 | 0.383 |

We compared various laboratory parameters with the patient outcome in our study.

1. **Acidosis and outcome:** The mean pH was 7.27 (S.D. 0.15) in the discharged patients, 7.15 (S.D. 0.15) in the patients who died and 7.19 (S.D.0.15) and 7.19 (S.D. 0.15) in the patients who went DAMA. The normal range for pH was taken as 7.35-7.45. In our study, the patients with who presented with acidosis at admission (pH less than 7.35) had poor outcomes and this comparison of pH with outcome was statistically significant with p-value of 0.000.

2. **Total serum bilirubin (TSB) and outcome:** Bilirubin (mg/dl) is an individual parameter of SOFA score. A score of 0 was assigned for bilirubin less than 1.2 mg/dl, score of 1 for bilirubin between 1.2-1.9mg/dl, score of 2 for 2.0- 5.9 mg/dl, score of 3 for 6.0- 11.9mg/dl and a score of 4 for bilirubin of more than 12mg/dl. The mean TSB was 2.03(S.D.6.55) in the discharged patients, 2.34 (S.D. 6.19) in the patients who died and 0.66 (S.D. 0.31) in the patients who went DAMA. This study of relation of TSB with outcome was statistically insignificant with a p-value of 0.807.

3. **Platelet count and outcome:** The normal platelet count was taken as 150- 450 ($10^3$/µL). Platelet count is one of the six parameters of the SOFA score. Score 0 was assigned to patients with platelet count of more than and equal to 150, score 1 for platelet count 100-149, score 2 for 50-99, score 3 for 20-49 and a score of 4 was given to patients with platelet count less than 20. The mean platelet count was 224.01 (S.D. 197.65) in discharged patients, 136.91 (S.D. 129.23) in the patients who died and 255.44 (S.D.195.17) in the patients who went DAMA. In our study, lower platelet count was associated with higher mortality and this correlation of platelet count with outcome was statistically significant with a p-value of 0.021.

4. **Creatinine and outcome :**The serum creatinine is a parameter of SOFA score.A SOFA score of 0 was given to patients with creatinine less than 1.2mg/dl, score 1 was given to creatinine 1.2- 1.9mg/dl , score 2 was given to patients with creatinine2.0- 3.4 mg/dl ,score 3 for creatinine3.5- 4.9 md/dl and score 4 for creatinine more than 5 mg/dl.

The mean creatinine in discharged patients was 0.77 (S.D.0.97), mean creatinine was 1.55 (S.D.1.66) in the patients who died and 1.19 (S.D.1.02) in the patients who went DAMA. The p-value was 0.001 which is statistically significant. Hence the patients with higher creatinine values had higher risk of mortality.

**5. Lactate and outcome:** We compared lactate with patient outcome. The mean lactate in the discharged patients was 3.49 (S.D.2.27), 5.36 (S.D.3.32) in the patients who died and 3.39 (S.D.2.31) in the patients who went DAMA. This correlation was statistically significant with p-value was 0.000. Hence it was found that in our study, the patients with higher values of lactate had higher risk of mortality.

**6. C-reactive protein (CRP) and outcome:** C-reactive protein is an acute inflammatory marker and is commonly used in our centre as a marker of sepsis. The patients who were discharged had a mean CRP of 106.94 (S.D. 106.95), the mean CRP was 162.68 (S.D.128.46) in the patients who expired and 90.61 (S.D.79.04) in the patients who went DAMA. This comparison of CRP with the patient outcome was statistically significant with a p-value of 0.013.

**7. Blood glucose:** The Random blood sugar (RBS) done for all patients was compared to the outcome. The mean RBS was 118.5 (S.D.84.48) in discharged patients, 104.59 (S.D.65.85) in the patients who died and 93.11 (S.D.40.98) in the patients who went DAMA. The comparison of RBS with patient outcome was statistically insignificant with a p-value of 0.383.

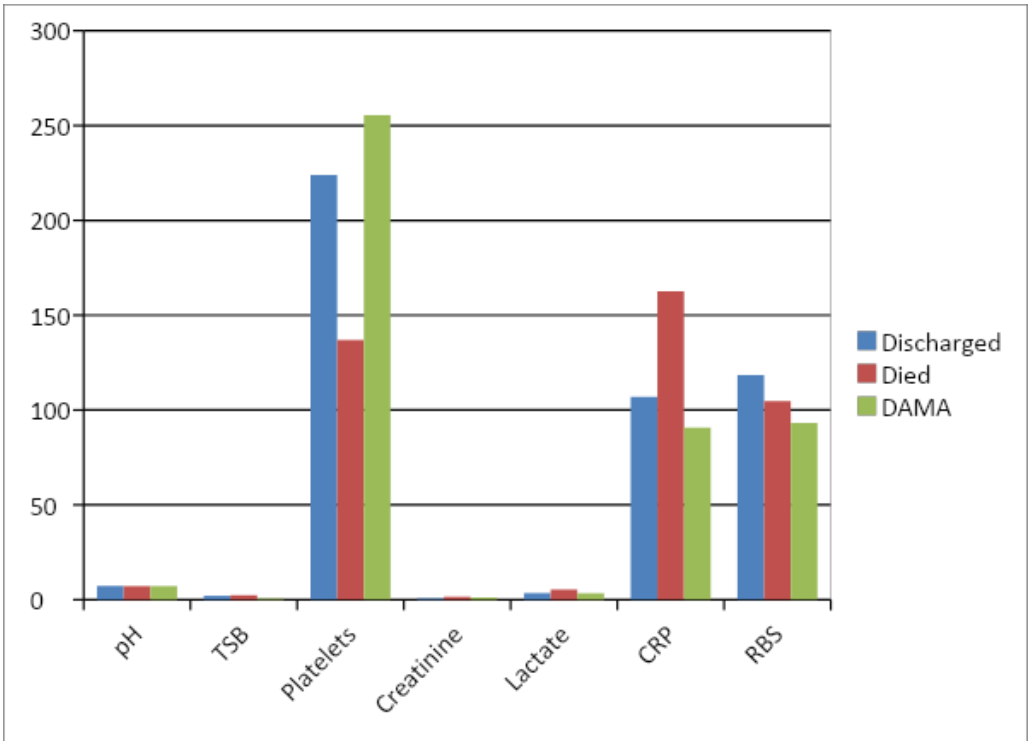


**Figure 41: Comparison of laboratory parameters and outcome**

**Table 30: Oxygen requirement and outcome**

| | | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| Oxygen | N | 8 | 89% | 0 | 0% | 1 | 11% | 9 | 2.806 | 0.246 |
| | Y | 101 | 72% | 32 | 23% | 8 | 6% | 141 | | |

Out of the total 150 patients, 141 patients required oxygen at admission out of which 101 patients (72%) were discharged, 32 patients (23%) died and 8 patients (6%) went DAMA. Nine patients did not require oxygen support at admission out of which 8 patients (89%) were discharged and 1 patient (11%) went DAMA and none died. The relation of oxygen requirement at admission and the outcome had a p-value of 0.246 which is insignificant.

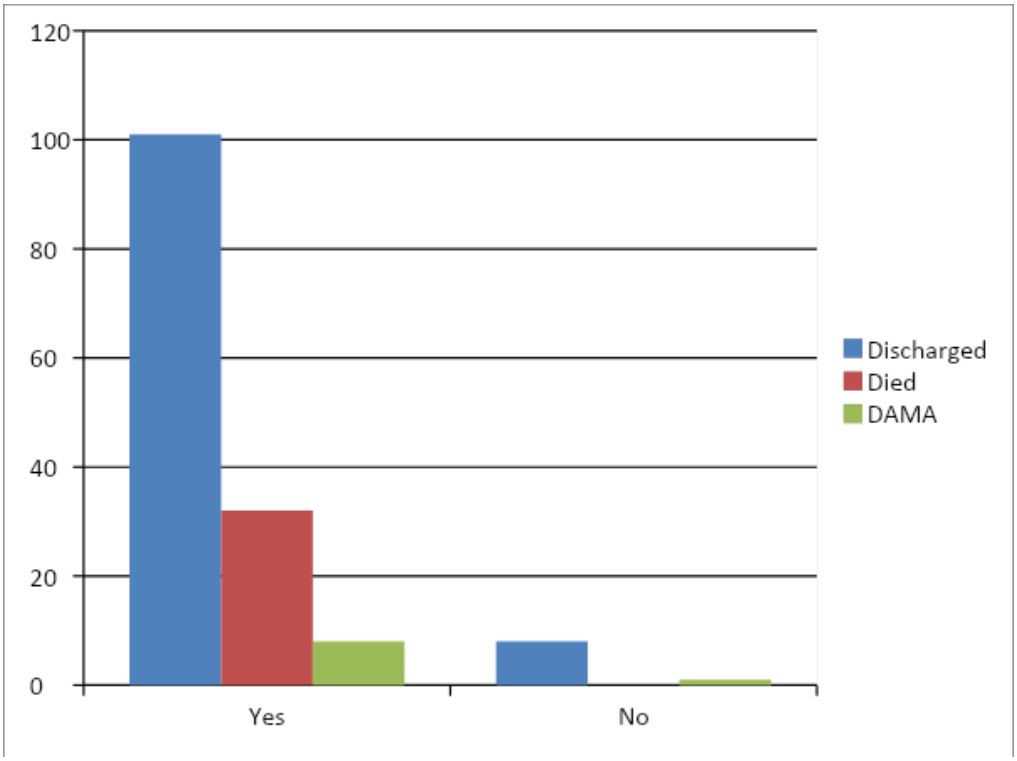


**Figure 42: Oxygen requirement and outcome**

**Table 31: Ventilation requirement and outcome**

| | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| Ventilation | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| No | 24 | 92% | 0 | 0% | 2 | 8% | 26 | 8.529 | 0.014 |
| Yes | 85 | 69% | 32 | 26% | 7 | 6% | 124 | | |

Out of the total 150 patients, 124 patients required some mode of ventilation at admission. Out of these 124 patients, 85 patients (69%) were discharged, 32 patients (26%) died and 7 patients (6%) went DAMA. The rest 26 patients who did not require any mode of ventilation at admission out of which 24 patients (92%) were discharged, 2 patients (8%) went DAMA and none died. The relation of need of ventilation at admission and the outcome had a p-value of 0.014 which is significant (<0.05).

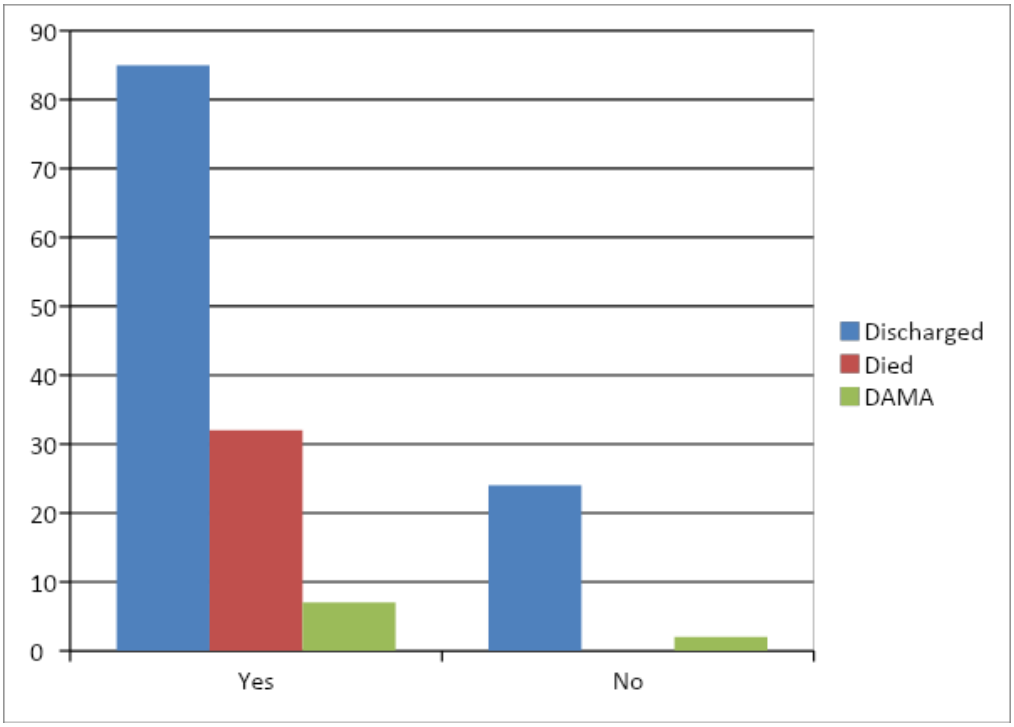


**Figure 43: Ventilation requirement and outcome**

**Table 32: Inotrope requirement and outcome**

| | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| Inotropes | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| No | 45 | 96% | 0 | 0% | 2 | 4% | 47 | 19.966 | 0.000 |
| Yes | 64 | 62% | 32 | 31% | 7 | 7% | 103 | | |

Out of the total 150 patients, 103 patients required inotropic support at admission. Out of these 103 patients, 64 patients (62%) were discharged, 32 patients (31%) died and 7 patients (7%) went DAMA. Forty seven patients did not require inotropes at admission out of which 45 patients (96%) were discharged, 2 patients (4%) went DAMA and none died. The relation of inotropic requirement at admission and the outcome had a p-value of 0.000 which is significant (<0.05).

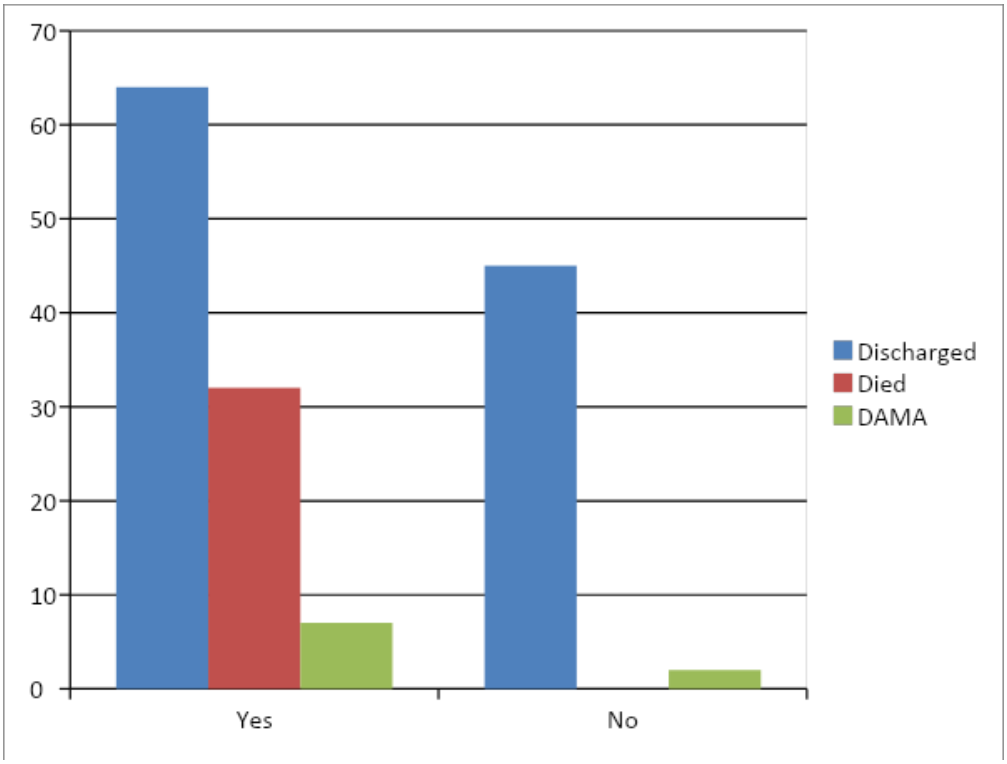


**Figure 44: Inotrope requirement and outcome**

**a: Table 33: Duration of stay and outcome**

| Duration of stay | Outcome | | | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | Discharge (n=109) | | Died (n=32) | | DAMA (n=9) | | | | |
| < 3 days | 13 | 46% | 13 | 46% | 2 | 7% | 28 | 18.269 | 0.006 |
| 3-7 days | 65 | 76% | 16 | 19% | 4 | 5% | 85 | | |
| 7-14 days | 20 | 83% | 1 | 4% | 3 | 13% | 24 | | |
| > 14 days | 11 | 85% | 2 | 15% | 0 | 0% | 13 | | |

Out of the total 150 patients, 28 patients had a PICU stay of < 3 days out of which 13 patients (46%) were discharged, 13 patients (46%) died and 2 patients (7%) went DAMA. There were 85 patients with duration of stay of 3 -7 days out of which 65 patients (76%) were discharged, 16 patients (19%) died and 4 patients (5%) went DAMA. Twenty four patients had a PICU stay of 7-14 days out of which 20 patients (83%) were discharged, 1 patient (4%) died and 3 patients (13%) went DAMA. There were 13 patients with > 14 days of PICU stay out of which 11 patients (85%) were discharged and 2 patients (15%) died. The relation of duration of PICU stay and the outcome had a p-value of 0.006 which is significant, i.e. patients who died had shorter duration of illness.

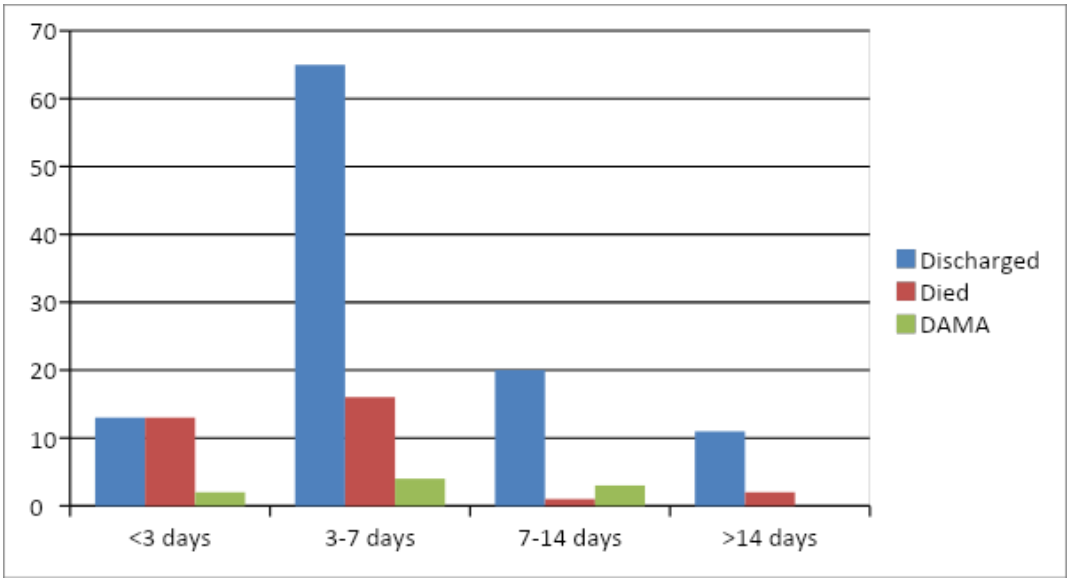


**Figure 45: Duration of stay and outcome**

**b. Table 34: Mean of duration of stay and outcome**

| | Discharge (n= 109) | | | | Died (n= 32) | | | | T | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Median | IQR | Mean | SD | Median | IQR | | | Lower | Upper |
| Duration of Stay | 7.57 | 7.32 | 5.00 | 3-8.0 | 4.50 | 5.43 | 3.00 | 2-5.0 | 2.199 | 0.030 | 0.31 | 5.83 |

In another comparison, the mean of duration of stay was compared with outcome excluding the patients who went DAMA (9) as in these patients the final outcome was unknown. Mean duration of stay in discharged patients (109) was 7.57 ± 7.32 and in expired patients (32) was 4.50 ± 5.43. Median duration of stay in discharged patients was 5.00 (3-8) and 3.00 (2-5.00) in the patients who died. The p value came out to be 0.030 which was significant.

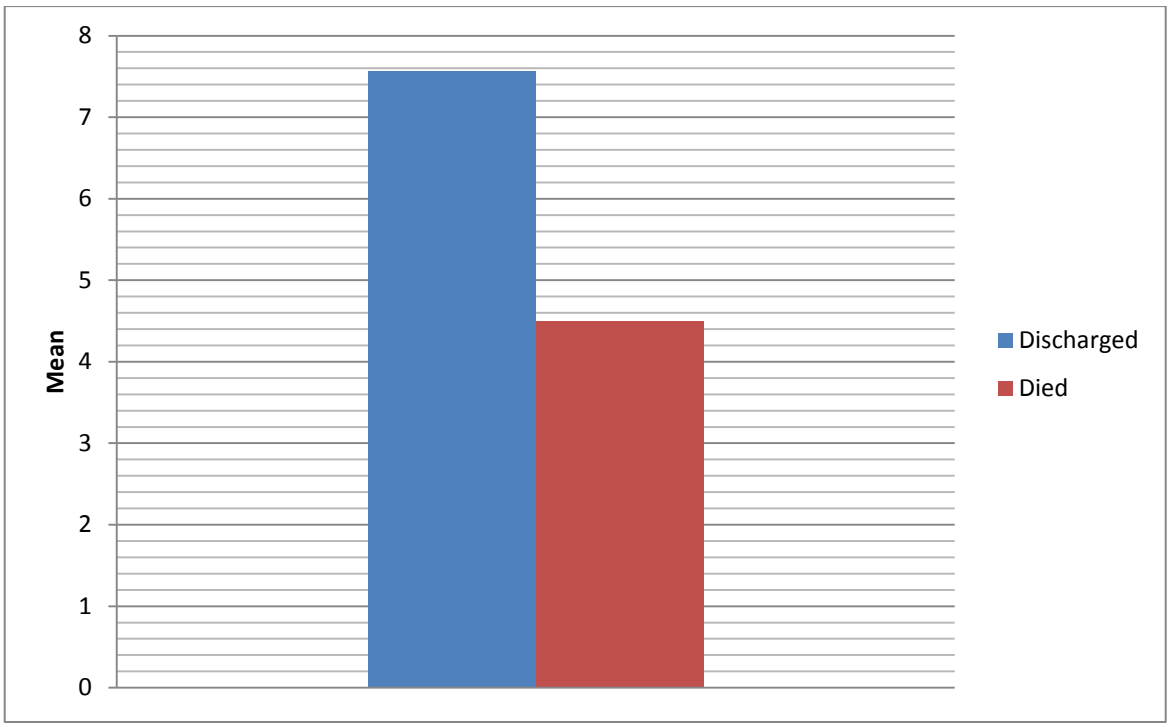


**Figure 46: Comparison of duration of stay and outcome**

**Table 35: Effect of PRISM score on outcome**

| | Discharge (n= 109) | | Died (n= 32) | | T | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | Lower | Upper |
| Prism Score | 12.28 | 7.89 | 20.13 | 7.95 | -4.937 | 0.000 | -10.98 | -4.70 |

In our study, effect of PRISM score was also seen on outcome (Discharged versus Died) Mean PRISM score in discharged patients was 12.28 ± 7.89 and in expired patients was 20.13 ± 7.95. The p value came out to be 0.000 (p value <0.05) which was significant.

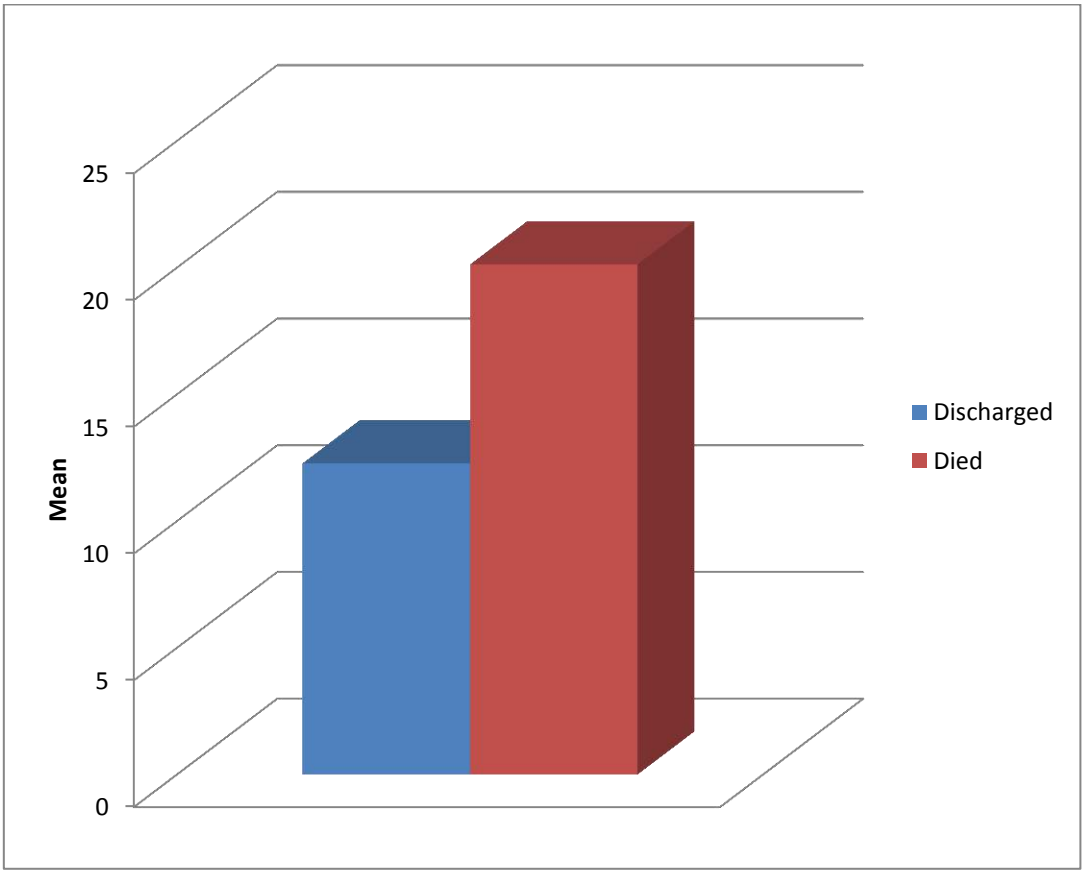


**Figure 47: Effect of PRISM score on outcome**

**Table 36: ROC of PRISM score**

**Area Under the Curve**

Test Result Variable(s):Prism Score

| Test Result Variable(s) | Area | Std. Error[a] | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| Prism Score | 0.803 | 0.045 | 0.000 | 0.715 | 0.890 |

As seen in ROC curve, area under the curve for PRISM score is 0.803 with a standard error of 0.045 (p value=0.000).

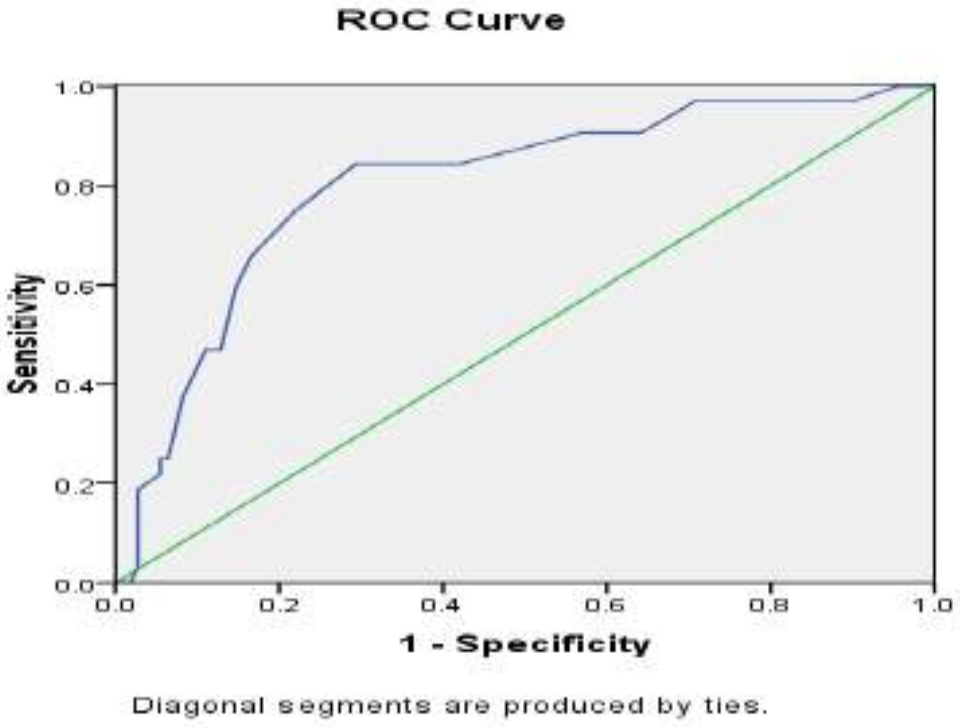


**Figure 48: ROC of PRISM score**

## C. SOFA Score and Quick SOFA score

The Sequential failure assessment score (SOFA) score is a simple and an objective score that enables calculation of both the number and the severity of organ dysfunction in six organ systems: Respiratory, Coagulation, Liver, Cardiovascular, Renal and Neurological systems. The sum total of the 6 scores for each organ system gives total SOFA score which can range from 0-24.

The Quick Sequential Organ Failure Assessment (qSOFA) score was originally described for adult patients as a simple bedside criteria to identify patients with suspected infection who are likely to have poor outcomes. It includes altered mentation, systolic blood pressure of 100 mmHg or less, and respiratory rate of22/min or greater.

We have applied both of these scores on the study population of 150 patients using age-adjusted cut-offs as per the PALS guidelines to establish their role in predicting patient outcome.

**Table 37: Total qSOFA Score**

| qSOFA Score Total | No. of cases | Percentage |
|---|---|---|
| 1 | 21 | 14.0% |
| 2 | 43 | 28.7% |
| 3 | 86 | 57.3% |
| **Total** | **150** | **100.0%** |

In this study, out of 150 patients, 21 patients (14.0%) had a quick SOFA score of 1, 43 patients (28.7%) had score of 2 and 86 patients (57.3%) had a score of 3.

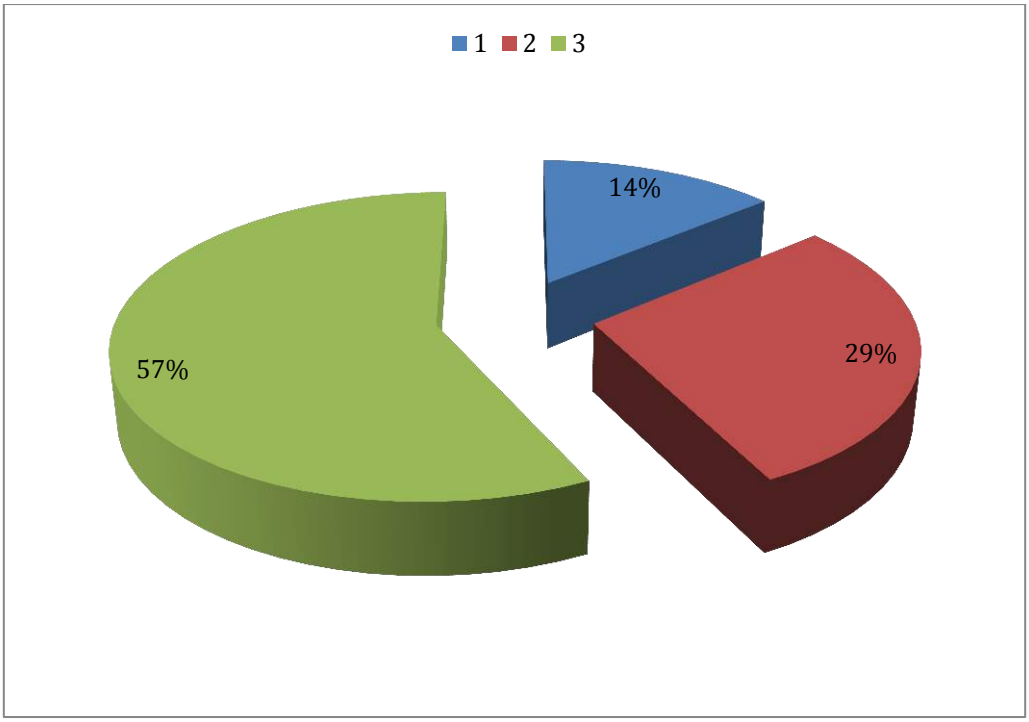


**Figure 49: Total qSOFA Score**

**Table 38: Mean score of SOFA at 24 hours, 72 hours and qSOFA score**

| Parameters (N=150) | Mean | Std. Deviation |
|---|---|---|
| Total SOFA (24 hrs) | 9.01 | 3.91 |
| Total SOFA (72 hrs) | 8.07 | 5.79 |
| qSOFA Score Total | 2.34 | 0.73 |

In our study, SOFA score was calculated first at 24 hours and then at 72 hours of admission as done in maximum studies till now. Mean SOFA score at 24 hours was found to be 9.01 ±3.91 and at 72 hours was 8.07 ± 5.79. Quick SOFA score can range from 0-3. In our study, mean qSOFA score was found to be 2.34 ± 0.73.

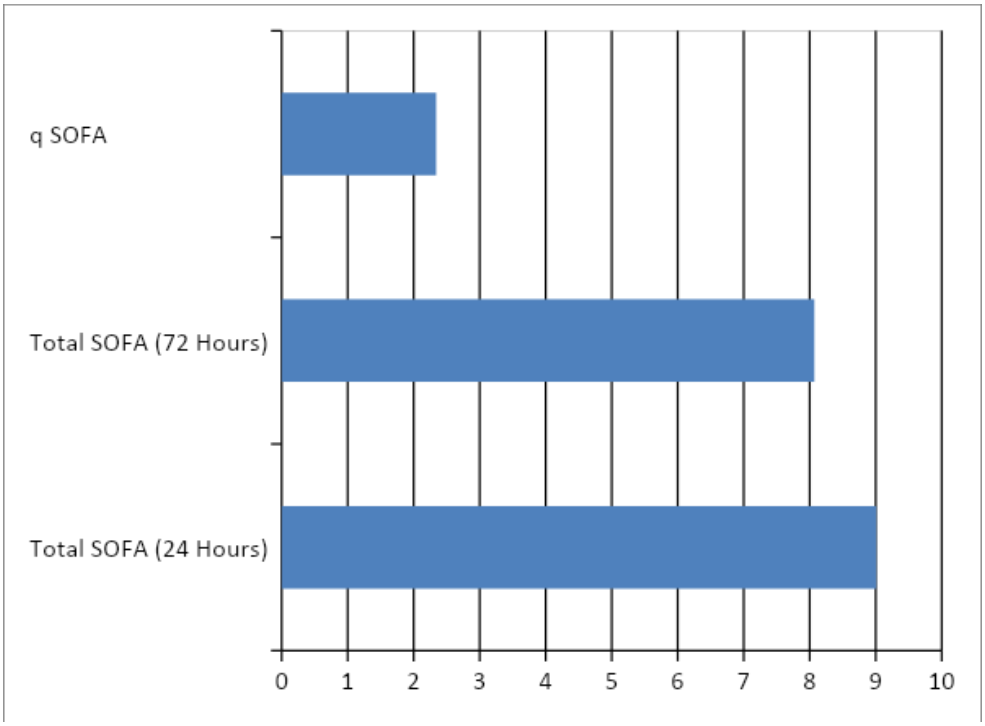


**Figure 50: Mean score of SOFA at 24 hours, 72 hours and qSOFA score**

**Table 39: Mean SOFA score at 24 hours in discharged, died and DAMA patients**

| 24 HOURS | Discharge (n= 109) | | Died (n= 32) | | DAMA (n= 9) | | F | p-value | Discharge vs Died | Discharge vs DAMA | Died vs DAMA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | | p-value | p-value | p-value |
| Total | 7.98 | 3.60 | 12.31 | 3.22 | 9.67 | 3.24 | 19.044 | 0.000 | 0.000 | 0.168 | 0.047 |

The mean SOFA score at 24 hours in discharged patients was 7.98 (S.D.3.6). In the patients who died, the mean SOFA score 24 hours was 12.31 (S.D.3.22). The patients who went DAMA had a mean SOFA score 24 hours of 9.67 (3.24).

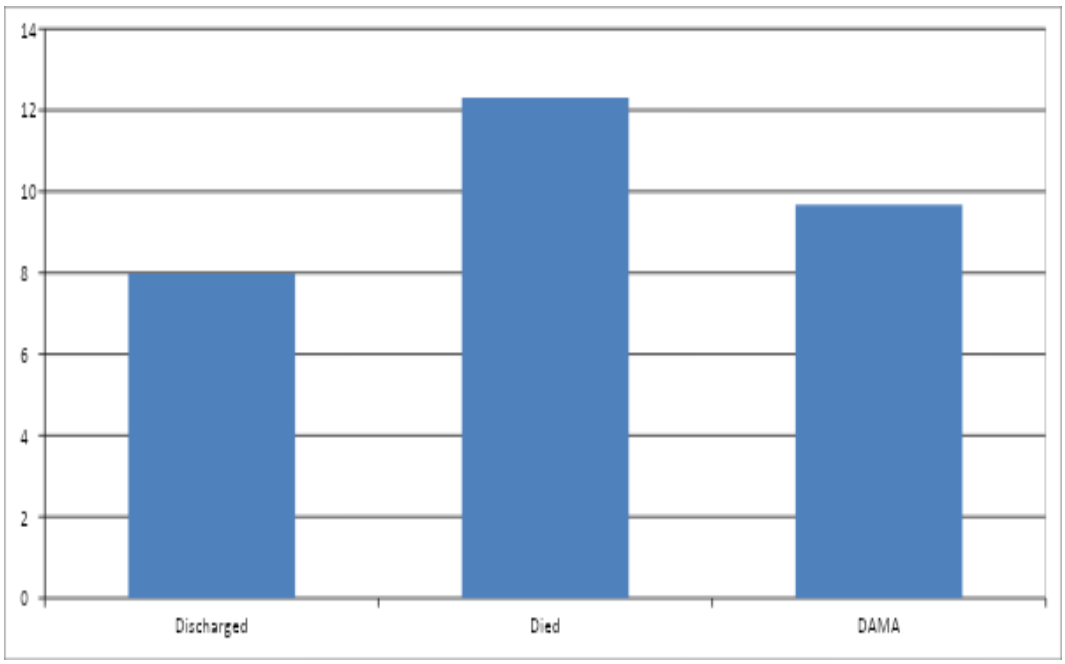


**Figure 51: SOFA 24 hours in discharged, died and DAMA patients**

**Table 40: Mean SOFA score at 72 hours in discharged, died and DAMA patients**

| 72 HOURS | Discharge (n= 109) | | Died (n= 32) | | DAMA (n= 9) | | F | p-value | Discharge vs Died | Discharge vs DAMA | Died vs DAMA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | | p-value | p-value | p-value |
| Total | 5.67 | 3.91 | 15.41 | 3.53 | 10.22 | 5.54 | 77.049 | 0.000 | 0.000 | 0.001 | 0.001 |

The mean SOFA score at 72 hours in discharged patients was 5.67 (S.D. 3.91). In the patients who died, the mean SOFA score 72 hours was 15.41 (S.D.3.53). The patients who went DAMA had a mean SOFA score 72 hours of 10.22 (5.54).

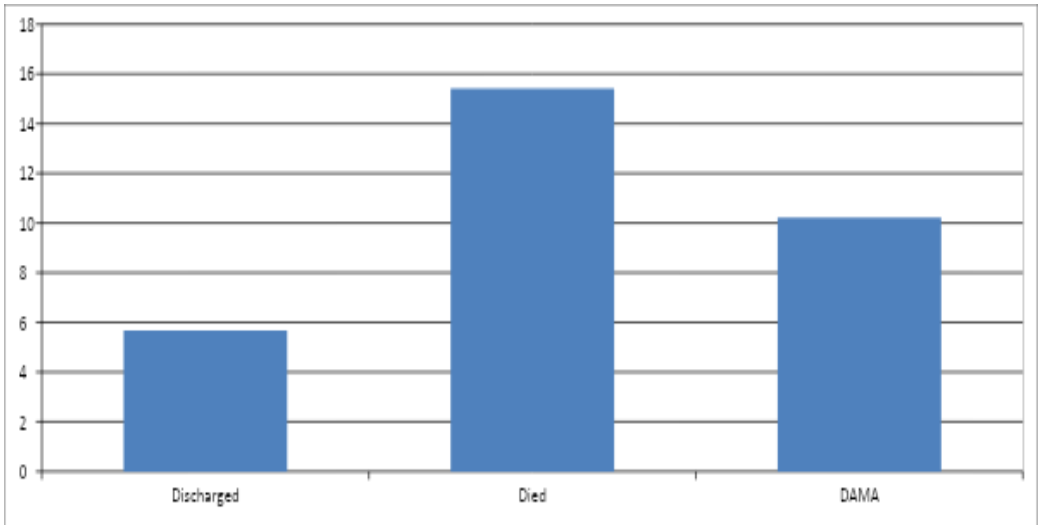


**Figure 52: SOFA 24 hours in discharged, died and DAMA patients**

**Table 41: Mean quick SOFA score in discharged, died and DAMA patients**

| SOFA Score | Discharge (n= 109) | | Died (n= 32) | | DAMA (n= 9) | | F | p-value | Discharge vs Died | Discharge vs DAMA | Died vs DAMA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | | p-value | p-value | p-value |
| Quick SOFA | 2.34 | 0.74 | 2.81 | 0.47 | 2.22 | 0.97 | 6.014 | 0.003 | 0.001 | 0.632 | 0.028 |

The mean quick SOFA score was calculated separately for discharged, died and DAMA patients. The mean quick SOFA score was 2.34 (S.D. 0.74) in discharged patients, 2.81 (S.D. 0.47) in the patients who died and 2.22 (S.D. 0.97) in DAMA patients. This comparison of quick SOFA score in relation to the patient outcome was statistically significant with p-value 0.003 (<0.05).

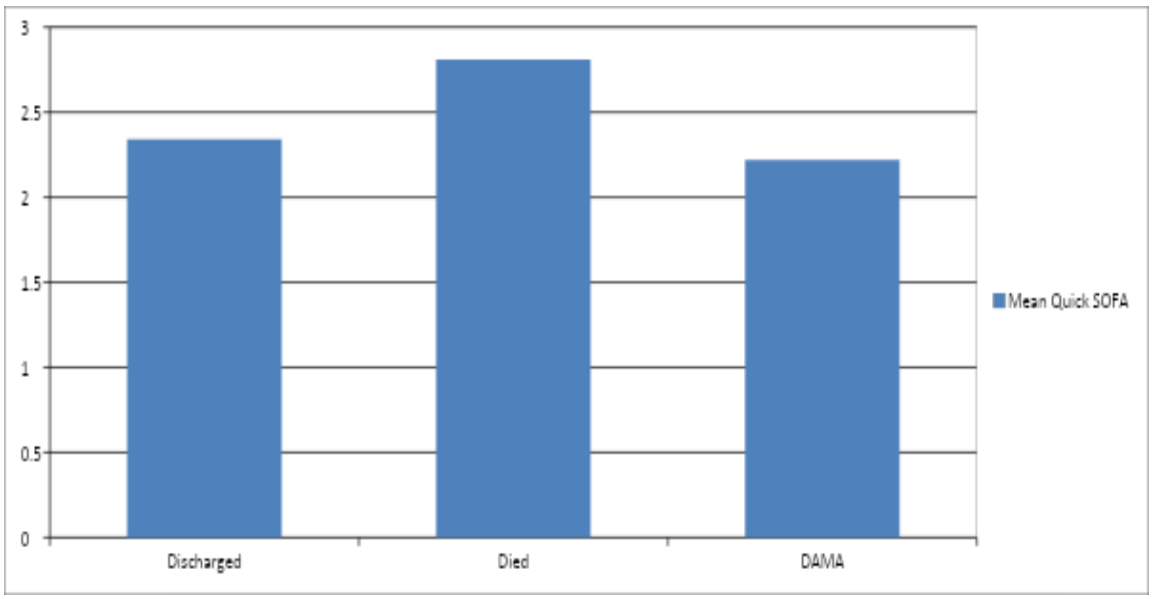


**Figure 53: Mean quick SOFA score in discharged, died and DAMA patients**

**Table 42: Comparison of SOFA score at 24 hours with survival**

| | | Outcome | | Total | %of Survival |
|---|---|---|---|---|---|
| | | Died | Discharged | | |
| SOFA 24 hours | 1 | 0 | 1 | 1 | 100% |
| | 2 | 0 | 4 | 4 | 100% |
| | 3 | 0 | 4 | 4 | 100% |
| | 4 | 1 | 12 | 13 | 92.30% |
| | 5 | 0 | 10 | 10 | 100% |
| | 6 | 1 | 12 | 13 | 92.30% |
| | 7 | 0 | 9 | 9 | 100% |
| | 8 | 3 | 9 | 12 | 75% |
| | 9 | 1 | 14 | 15 | 93.34% |
| | 10 | 0 | 5 | 5 | 100% |
| | 11 | 5 | 10 | 15 | 66.67% |
| | 12 | 4 | 7 | 11 | 63.63% |
| | 13 | 5 | 4 | 9 | 44.45% |
| | 14 | 7 | 3 | 10 | 30% |
| | 15 | 0 | 2 | 2 | 100% |
| | 16 | 2 | 2 | 4 | 50% |
| | 17 | 1 | 0 | 1 | 0% |
| | 18 | 2 | 1 | 3 | 33.34% |
| Total | | 32 | 109 | 141 | 77.30% |

*DAMA excluded

The table shows comparison of individual total SOFA score at 24 hours with survival. SOFA score can range from 0-24. In our study, the minimum SOFA score at 24 hours was 1 and the maximum SOFA score at 24 hours was 18. There were total 150 patients out of which 109 survived, 32 died and 9 went DAMA. As the comparison was done with survival and outcome, so patients who took DAMA were excluded from the final percentage. There was no patient with a SOFA score of 0. There was 1 patient with a SOFA score of 1and the patient survived

(100%). A SOFA score of 2 was seen in 4 patients out of which all 4 (100%) survived. A SOFA score of 3 was seen in 4 patients out of which all 4 (100%) survived. Total 13 patients had a SOFA score of 4 out of which 12 (92.30%) survived and 1 (7.70%) died. A SOFA score of 5 was seen in 10 patients and all 10 (100%) survived. Total 13 patients had a SOFA score of 6 out of which 12 (92.30%) survived and 1 died (7.70%). In SOFA score of 7, there were a total of 9 patients who all (100%) survived. SOFA score of 8 was present in 12 patients of which 9 patients survived (75%) and 3 died (25%). A SOFA score of 9 was seen in 15 patients of which 14 patients survived (93.34%) and 1 died (6.67%). There were 5 patients who had a SOFA score of 10 and all survived (100%). A SOFA score of 11 was seen in 15 patients out of which 10 patients (66.67%) survived and 5 patients (33.33%) died. In SOFA score of 12, there were a total of 11 patients out of which 7 patients (63.63%) survived and 4 patients (36.37%) died. A SOFA score of 13 was seen in 9 patients out of which 4 patients (44.45%) survived and 5 patients (55.55%) died. Total 10 patients had a SOFA score of 14 out of which 3 patients survived (30%) and 7 patients died (70%). Two patients had a SOFA score of 15 who survived which showed a survival rate of 100%. A SOFA score of 16 was seen in 4 patients out of which 2 patients survived (50%) and 2 died (50%).A SOFA score of 17 was seen in 1 patients who died (0% survival). Three patients had a SOFA score of 18 out of which 1 patient survived (33.34%) and 2 died (66.66%).In total out of 141 patients (DAMA excluded), 109 patients survived and 32 patients died showing 77.30 % survival.

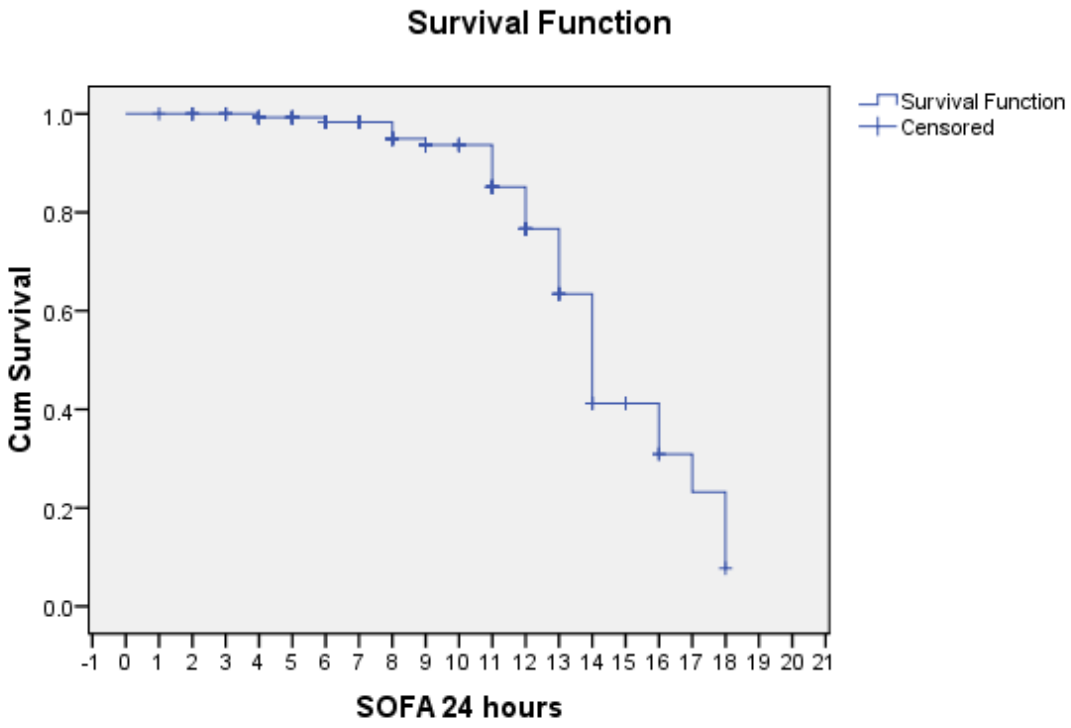


**Figure 54: Comparison of SOFA score at 24 hours with survival**

**Table 43: Comparison of SOFA score at 72 hours with survival**

| | | Outcome | | Total | % Survival |
|---|---|---|---|---|---|
| | | Died | Discharged | | |
| SOFA 72 Hours | 0 | 0 | 6 | 6 | 100% |
| | 1 | 0 | 13 | 13 | 100% |
| | 2 | 0 | 7 | 7 | 100% |
| | 3 | 0 | 10 | 10 | 100% |
| | 4 | 0 | 10 | 10 | 100% |
| | 5 | 0 | 15 | 15 | 100% |
| | 6 | 0 | 6 | 6 | 100% |
| | 7 | 0 | 10 | 10 | 100% |
| | 8 | 2 | 8 | 10 | 80% |
| | 9 | 0 | 5 | 5 | 100% |
| | 10 | 2 | 5 | 7 | 71.42% |
| | 11 | 0 | 2 | 2 | 100% |
| | 12 | 2 | 4 | 6 | 66.66% |
| | 13 | 3 | 4 | 7 | 57.14% |
| | 14 | 1 | 1 | 2 | 50% |
| | 15 | 3 | 3 | 6 | 50% |
| | 16 | 8 | 0 | 8 | 0% |
| | 17 | 2 | 0 | 2 | 0% |
| | 18 | 6 | 0 | 6 | 0% |
| | 20 | 1 | 0 | 1 | 0% |
| | 21 | 1 | 0 | 1 | 0% |
| | 24 | 1 | 0 | 1 | 0% |
| Total | | 32 | 109 | 141 | 77.30% |

*DAMA excluded

We have compared the total SOFA score at 72 hours with survival. SOFA score can range from 0-24. In our study, the minimum SOFA score at 72 hours was 0 and the maximum SOFA score at 72 hours was 24. There were total 150 patients out of which 109 survived, 32

died and 9 went DAMA. As the comparison was done with survival and outcome, so patients who took DAMA were excluded from the final percentage. A total of 6 patients had a SOFA score of 0 and all 6 survived (100%). There were 13 patients with a SOFA score of 1 who all survived showing 100% survival. A SOFA score of 2 was seen in 7 patients out of which all 7 (100%) survived. A SOFA score of 3 was seen in 10 patients out of which all 10 (100%) survived. Total 10 patients had a SOFA score of 4 out of which all 10 (100%) survived. A SOFA score of 5 was seen in 15 patients and all 15 (100%) survived. A SOFA score of 6 was seen in 6 patients who survived showing 100% survival. In SOFA score of 7, there were a total of 10 patients who all (100%) survived. There were 10 patients with a SOFA score of 8 out of which 8 survived (80%) and 2 died (20%). A SOFA score of 9 was seen in 5 patients and all 5 (100%) survived. There were 7 patients who had a SOFA score of 10 and 5 survived (71.42%) and 2 died (28.58%). A SOFA score of 11 was seen in 2 patients and both survived with 100% survival. In SOFA score of 12, there were a total of 6 patients out of which 4 patients (66.66%) survived and 2 patients (33.34%) died. A SOFA score of 13 was seen in 7 patients out of which 4 patients (57.14%) survived and 3 patients (42.86%) died. Two patients had a SOFA score of 14 out of which 1 patient survived (50%) and 1 patient died (50%). A SOFA score of 15 was seen in 6 patients out of which 3 patients (50%) survived and 3 patients (50%) died. A SOFA score of 16 was seen in 8 patients and all 8 died (0%).There were 2 patients with a SOFA score of 17 and both died with 0% survival. A SOFA score of 18 was seen in 6 patients and all 6 died with 0% survival. There was only 1 patient with a SOFA score of 20 who died showing 0% survival. One patient had a SOFA score of 21 who died with 0% survival. SOFA score of 24 was present in 1 patient who died with 0% survival. In total out of 141 patients (DAMA excluded), 109 patients survived and 32 patients died showing 77.30% survival

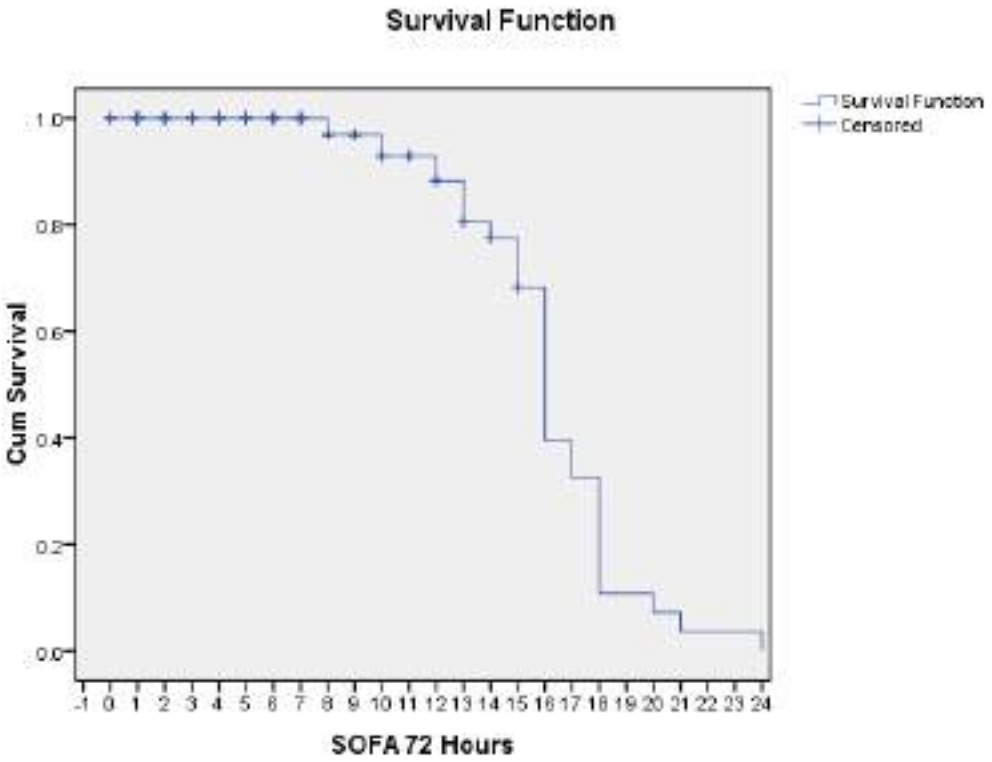


**Figure 55: Comparison of SOFA score at 72 hours with survival**

**Table 44: Area under ROC curve and coordinates of the curve for SOFA at 24 hours, SOFA at 72 hours and qSOFA score**

**Area Under the Curve**

| Test Result Variable(s) | Area | Std. Error[a] | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.814 | 0.042 | 0.000 | 0.732 | 0.897 |
| SOFA 72 Hours | 0.961 | 0.015 | 0.000 | 0.932 | 0.991 |
| Quick SOFA | 0.678 | 0.049 | 0.002 | 0.582 | 0.775 |

**Coordinates of the Curve**

| Test Result Variable (s) | Positive if Greater Than or Equal To[a] | Sensitivity | Specificity | 1 – Specificity |
|---|---|---|---|---|
| 24 hours | 0.00 | 1.00 | 0.00 | 1.00 |
| | 1.50 | 1.00 | 0.01 | 0.99 |
| | 2.50 | 1.00 | 0.04 | 0.96 |
| | 3.50 | 1.00 | 0.08 | 0.92 |
| | 4.50 | 0.97 | 0.18 | 0.82 |
| | 5.50 | 0.97 | 0.26 | 0.74 |
| | 6.50 | 0.94 | 0.38 | 0.62 |
| | 7.50 | 0.94 | 0.47 | 0.53 |
| | 8.50 | 0.84 | 0.54 | 0.46 |
| | **9.50** | **0.81** | **0.68** | 0.32 |
| | **10.50** | **0.81** | **0.73** | 0.27 |
| | 11.50 | 0.66 | 0.82 | 0.18 |
| | 12.50 | 0.53 | 0.88 | 0.12 |
| | 13.50 | 0.38 | 0.92 | 0.08 |
| | 14.50 | 0.16 | 0.95 | 0.05 |
| | 15.50 | 0.16 | 0.97 | 0.03 |
| | 16.50 | 0.09 | 0.99 | 0.01 |
| | 17.50 | 0.06 | 0.99 | 0.01 |
| | 19.00 | 0.00 | 1.00 | 0.00 |
| 72 Hours | -1.00 | 1.00 | 0.00 | 1.00 |
| | 0.50 | 1.00 | 0.05 | 0.95 |
| | 1.50 | 1.00 | 0.16 | 0.84 |
| | 2.50 | 1.00 | 0.22 | 0.78 |
| | 3.50 | 1.00 | 0.31 | 0.69 |
| | 4.50 | 1.00 | 0.40 | 0.60 |
| | 5.50 | 1.00 | 0.54 | 0.46 |
| | 6.50 | 1.00 | 0.59 | 0.41 |
| | 7.50 | 1.00 | 0.68 | 0.32 |
| | **8.50** | **0.94** | **0.75** | 0.25 |
| | **9.50** | **0.94** | **0.80** | 0.20 |
| | **10.50** | **0.88** | **0.85** | 0.15 |
| | **11.50** | **0.88** | **0.87** | 0.13 |
| | **12.50** | **0.81** | **0.91** | 0.09 |
| | 13.50 | 0.72 | 0.95 | 0.05 |
| | 14.50 | 0.69 | 0.96 | 0.04 |
| | 15.50 | 0.59 | 0.98 | 0.02 |
| | 16.50 | 0.34 | 0.99 | 0.01 |
| | 17.50 | 0.28 | 0.99 | 0.01 |
| | 19.00 | 0.09 | 0.99 | 0.01 |
| | 20.50 | 0.06 | 1.00 | 0.00 |
| | 26.50 | 0.03 | 1.00 | 0.00 |
| | 33.00 | 0.00 | 1.00 | 0.00 |
| Quick SOFA | 0.00 | 1.00 | 0.00 | 1.00 |
| | 1.50 | 0.97 | 0.17 | 0.83 |
| | 2.50 | 0.84 | 0.50 | 0.50 |
| | 4.00 | 0.00 | 1.00 | 0.00 |

As seen in ROC curve, area under the curve for SOFA score at 24 hours is 0.814 with a standard error of 0.042 (p value=0.000), for SOFA score at 72 hours is 0.961 with a standard error of 0.015 (p value=0.000) and qSOFA score is 0.678 with a standard error of 0.049 (p value=0.002). As per the coordinates plotted on the ROC curve, the best cut-offs of SOFA score at 24 hours were9.5 with a sensitivity of 0.81 and specificity of 0.68 and at 10.5 with sensitivity of 0.81 and specificity of 0.73, so an average cut-off taken for SOFA score at 24 hours in our study is 10. Coordinates plotted on the ROC curve showed the best cut-off in SOFA score at 72 hours at9.5 with a sensitivity of 0.94 and specificity of 0.80 and 10.5 with sensitivity of 0.88 and specificity of 0.85. So the average cut-off taken for SOFA score at 72 hours in our study is 10. Excellent correlation was seen with SOFA score calculated at 72 hours. Coordinates plotted of the ROC curve showed the best cut-off in Quick SOFA score at 2.5 with a sensitivity of 0.84 and specificity of 0.50. So the cut-off taken for SOFA score at 72 hours in our study is 2.5.

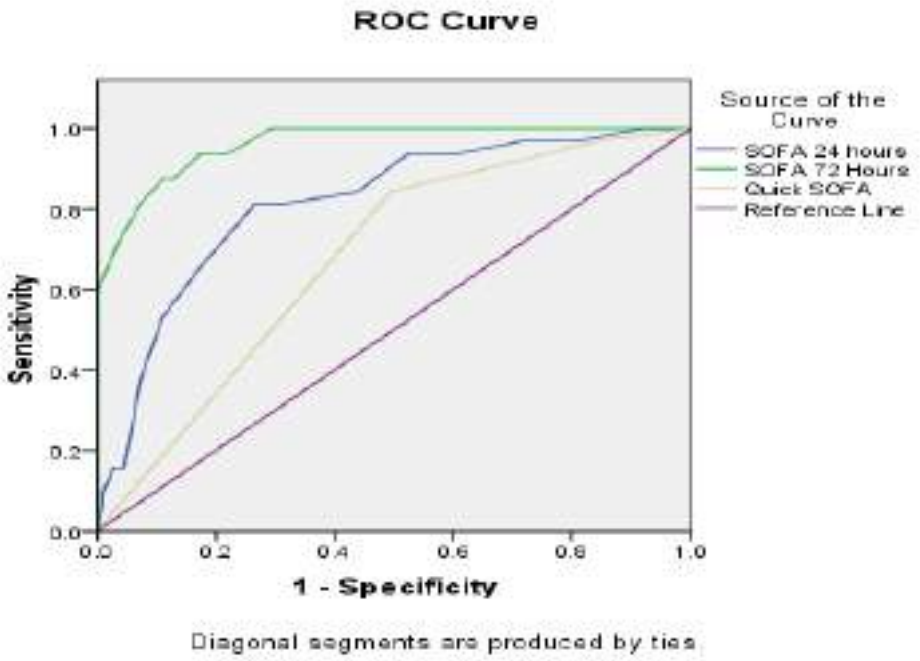


**Figure 56: ROC curve for SOFA at 24 hours, SOFA at 72 hours and qSOFA score**

## D. CORRELATION OF SOFA AND QUICK SOFA WITH VARIOUS PARAMETERS :

As per the ROC curve, a cut-off of 10 has shown to have the best sensitivity and specificity at both 24 hours and 72 hours. This cut-off has been taken to see the correlation of SOFA score with all other parameters.

### I. MORBIDITY :

**1.** AGE :

**1a: Table 45: Comparison of outcome at SOFA 24 hours in different age-groups**

| Age group | | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Died | | Discharged | | | | |
| 1month-1 year | SOFA 24 hours | < 10 | 2 | 10% | 18 | 90% | 20 | 6.25 | 0.012 |
| | | ≥ 10 | 3 | 60% | 2 | 40% | 5 | | |
| | Total | | 5 | 20% | 20 | 80% | 25 | | |
| 1year-5years | SOFA 24 hours | < 10 | 1 | 4% | 24 | 96% | 25 | 12.46 | 0.001 |
| | | ≥ 10 | 6 | 55% | 5 | 45% | 11 | | |
| | Total | | 7 | 19% | 29 | 81% | 36 | | |
| 5year-10years | SOFA 24 hours | < 10 | 1 | 6% | 15 | 94% | 16 | 5.4 | 0.02 |
| | | ≥ 10 | 8 | 40% | 12 | 60% | 20 | | |
| | Total | | 9 | 25% | 27 | 75% | 36 | | |
| > 10year | SOFA 24 hours | < 10 | 2 | 10% | 18 | 90% | 20 | 4.4 | 0.036 |
| | | ≥ 10 | 9 | 38% | 15 | 63% | 24 | | |
| | Total | | 11 | 25% | 33 | 75% | 44 | | |

In this study, comparison of patient outcome and SOFA score at 24 hours was done in different age-groups. There were a total of 25 patients in the age group of 1 month- 1 year. Out of 25 patients, 20 were discharged from ICU and 5 died. A SOFA score of less than 10 was found in 20 patients out of which all 18 patients (90%) were discharged from ICU and 2 patients (10%) with a score <10 died. A score of ≥10 was found in 5 patients out of which 2 patients (40%) got discharged and 3 patients (60%) died. A p value of 0.012 was found which was significant. Similarly, there were a total of 36 patients in the age group of 1-5 years. Out of 36 patients, 29 were discharged from ICU and 7 died. A SOFA score of less than 10 was found in 25 patients

out of which 24 patients (96%) were discharged from ICU and 1 patient (4%) with a score <10 died. A score of ≥10 was found in 11 patients out of which 5 patients (45%) got discharged and 6 patients (55%) died. A p value of 0.001 was found which was significant.

In the age group 5 years- 10 years, there were a total of 36 patients. Out of 36 patients, 27 were discharged from ICU and 9 died. A SOFA score of less than 10 was found in 16 patients out of which all 15 patients (94%) were discharged from ICU and 1 patient (6%) with a score <10 died. A score of ≥10 was found in 20 patients out of which 12 patients (60%) got discharged and 8 patients (40%) died. A p value of 0.02 was found which was significant (p value <0.05).

In the age group of >10 years, there were a total of 44 patients. Out of 44 patients, 33 patients were discharged from ICU and 11 died. A SOFA score of less than 10 was found in 20 patients out of which all 18 patients (90%) were discharged from ICU and 2 patients (10%) with a score <10 died. A score of ≥10 was found in 24 patients out of which 15 patients (63%) got discharged and 9 patients (38%) died. So, the SOFA score at 24 hours correlated well with the patient outcome in all groups with a statistically significant p value of 0.036 (p value <0.05).

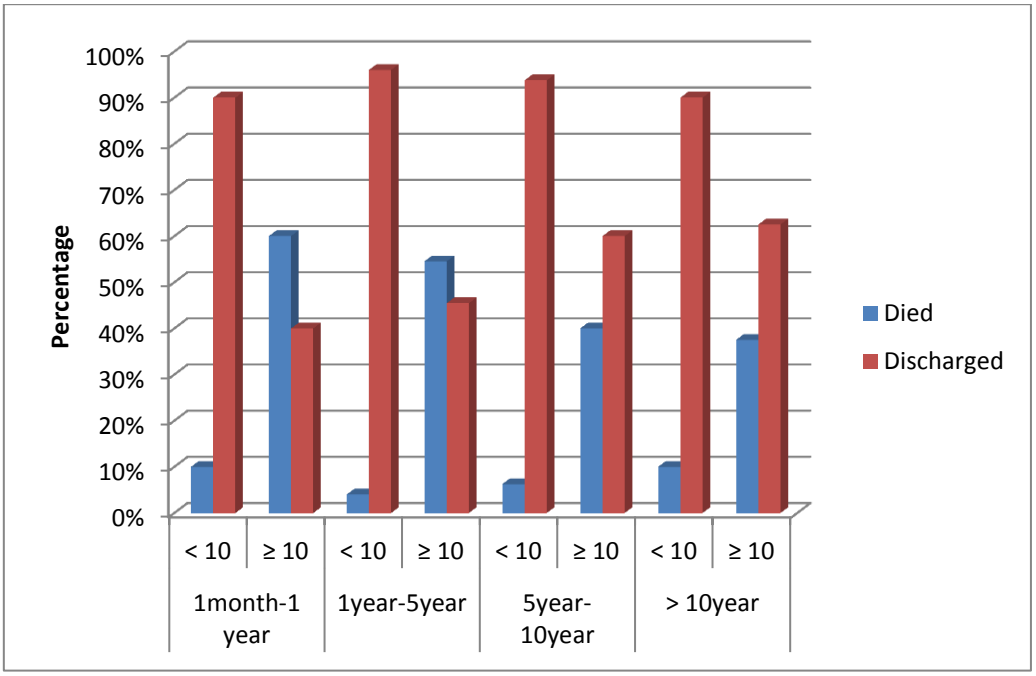


**Figure 57: Comparison of outcome at SOFA at 24 hours in different age-groups**

**1b: Table 46: Comparison of outcome with SOFA 72 hours in different age-groups**

| Age group | | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Died | | Discharged | | | | |
| 1month-1 year | SOFA 72 hours | < 10 | 0 | 0% | 17 | 100% | 17 | 13.281 | 0.001 |
| | | ≥ 10 | 5 | 63% | 3 | 38% | 8 | | |
| | Total | | 5 | 20% | 20 | 80% | 25 | | |
| 1year-5year | SOFA 72 hours | < 10 | 0 | 0% | 25 | 100% | 25 | 19.749 | 0.001 |
| | | ≥ 10 | 7 | 64% | 4 | 36% | 11 | | |
| | Total | | 7 | 19% | 29 | 81% | 36 | | |
| 5year-10year | SOFA 72 hours | < 10 | 0 | 0% | 21 | 100% | 21 | 16.8 | 0.001 |
| | | ≥ 10 | 9 | 60% | 6 | 40% | 15 | | |
| | Total | | 9 | 25% | 27 | 75% | 36 | | |
| > 10year | SOFA 72 hours | < 10 | 2 | 7% | 27 | 93% | 29 | 14.869 | 0.001 |
| | | ≥ 10 | 9 | 60% | 6 | 40% | 15 | | |
| | Total | | 11 | 25% | 33 | 75% | 44 | | |

In this study, comparison of outcome and SOFA score at 72 hours was done separately in different age-groups. There were a total of 25 patients in the age group of 1 month- 1 year. Out of 25 patients, 20 were discharged from ICU and 5 died. A SOFA score of less than 10 was found in 17 patients out of which all 17 patients (100%) were discharged from ICU and none of the patients (0%) with a score <10 died. A score of ≥10 was found in 8 patients out of which 5 patients (63%) got discharged and 3 patients (38%) died. A p value of 0.001 was found which was significant. Similarly, there were a total of 36 patients in the age group of 1-5 years. Out of 36 patients, 29 were discharged from ICU and 7 died. A SOFA score of less than 10 was found in 25 patients out of which all 25 patients (100%) were discharged from ICU and none of the patients (0%) with a score <10 died. A score of ≥10 was found in 11 patients out of which 4 patients (36%) got discharged and 7 patients (64%) died. A p value of 0.001 was found which was significant.

In the age group 5- 10 years, there were a total of 36 patients. Out of

36 patients, 27 were discharged from ICU and 9 patients died. A SOFA score of less than 10 was found in 21 patients out of which all 21 patients (100%) were discharged from ICU and none of the patients (0%) died. A score of ≥10 was found in 15 patients out of which 6 patients (40%) got discharged and 9 patients (60%) died. A p value of 0.001 was found which was significant.

In the age group of >10 years, there were a total of 44 patients. Out of 44 patients, 33 were discharged from ICU and 11 patients died. A SOFA score of less than 10 was found in 29 patients out of which 27 patients (93%) were discharged from ICU and 2 patients (7%) died. A score of ≥10 was found in 15 patients out of which 6 patients (40%) got discharged and 9 patients (60%) died. The SOFA score at 72 hours correlated well with the outcome in all age-groups with a p value of 0.001 which is statistically significant.

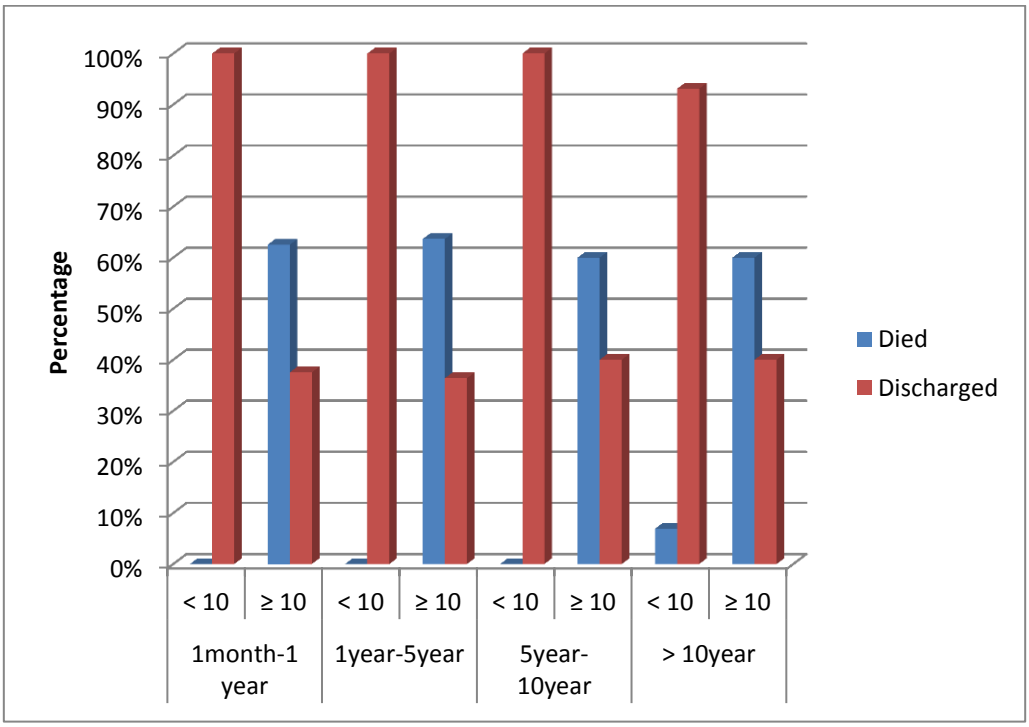


**Figure 58: Comparison of age group with outcome at SOFA at 72 hours**

**1c: Area under ROC curve for SOFA at 24 hours and SOFA at 72 hours in different age groups.**

We derived separate ROC curves for each age-group to find out whether the SOFA score has more significance in any particular age-group.

**Table 47: AUROC for Age group: 1 month – 1 year**

**Area Under the Curve**

| Test Result Variable(s) | Area | Std. Error | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.871 | 0.074 | 0.011 | 0.694 | 1.000 |
| SOFA 72 Hours | 0.952 | 0.040 | 0.002 | 0.000 | 1.000 |

As seen in ROC curve, area under the curve for SOFA score at 24 hours is 0.871 with a standard error of 0.074 (p value=0.011), for SOFA score at 72 hours is 0.952 with a standard error of 0.040 (p value=0.002).

**Coordinates of the Curve**

| Test Result Variable(s) | Positive if Greater Than or Equal To[a] | Sensitivity | 1 - Specificity | Specificity |
|---|---|---|---|---|
| SOFA 24 hours | 3.00 | 1.000 | 1.000 | .000 |
| | 4.50 | 1.000 | .905 | .095 |
| | 5.50 | 1.000 | .619 | .381 |
| | **6.50** | **1.000** | **.429** | **.571** |
| | **7.50** | **1.000** | **.333** | **.667** |
| | 8.50 | .800 | .286 | .714 |
| | 10.00 | .600 | .095 | .905 |
| | 11.50 | .600 | .048 | .952 |
| | 12.50 | .400 | .048 | .952 |
| | 13.50 | .200 | .048 | .952 |
| | 14.50 | .000 | .048 | .952 |
| | 16.00 | .000 | .000 | 1.000 |
| SOFA 72 Hours | -1.00 | 1.000 | 1.000 | .000 |
| | .50 | 1.000 | .952 | .048 |
| | 1.50 | 1.000 | .905 | .095 |
| | 2.50 | 1.000 | .857 | .143 |
| | 3.50 | 1.000 | .619 | .381 |
| | 4.50 | 1.000 | .429 | .571 |
| | 6.00 | 1.000 | .238 | .762 |
| | **7.50** | **1.000** | **.190** | **.810** |
| | **9.00** | **1.000** | **.143** | **.857** |
| | 11.00 | .800 | .095 | .905 |
| | 13.00 | .600 | .095 | .905 |
| | 14.50 | .600 | .048 | .952 |
| | 15.50 | .400 | .000 | 1.000 |
| | 16.50 | .200 | .000 | 1.000 |
| | 18.00 | .000 | .000 | 1.000 |

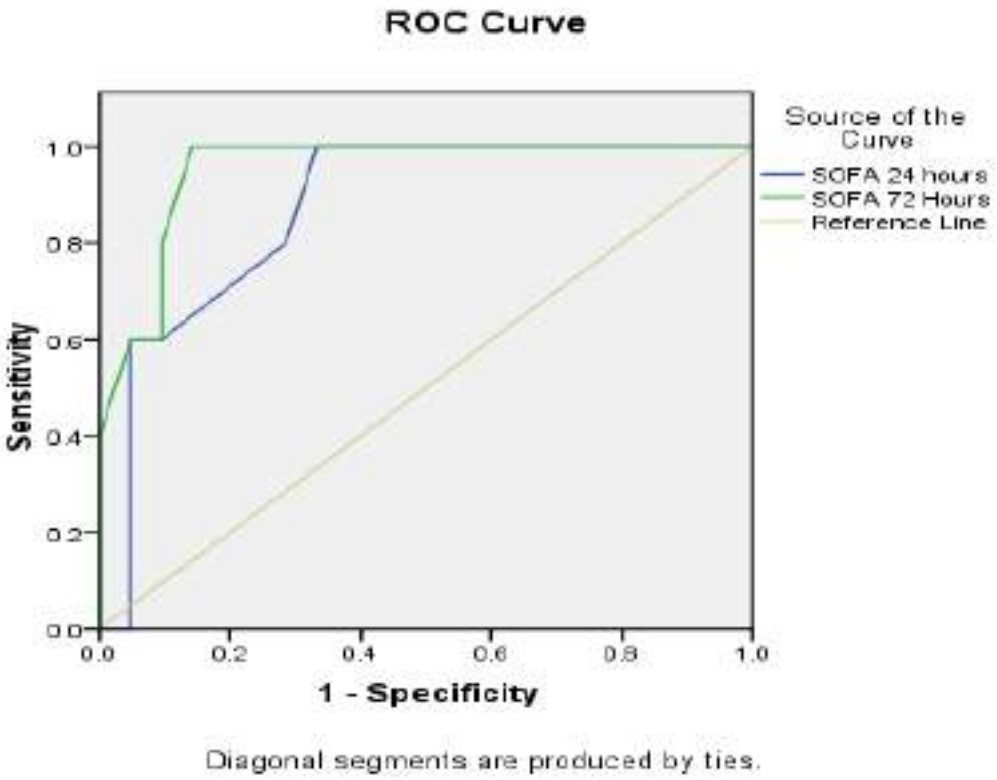


**Figure 59: ROC curve for Age 1 month – 1 year**

**Table 48: AUROC for Age group : 1 year – 5 year**

**Area Under the Curve**

| Test Result Variable (s) | Area | Std. Error | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.873 | 0.074 | 0.002 | 0.695 | 1.000 |
| SOFA 72 Hours | 0.984 | 0.018 | 0.000 | 0.000 | 1.000 |

The area under the ROC curve derived for patients belonging to the age-group 1 year- 5 years was 0.873 with S.D. 0.074 (p-value 0.002) for SOFA at 24 hours. For SOFA at 72 hours, the area under the ROC was 0.984 with S.D. 0.018 (p-value 0.000).

**Coordinates of the Curve**

| Test Result Variable (s) | Positive if Greater Than or Equal To[a] | Sensitivity | 1 - Specificity | Specificity |
|---|---|---|---|---|
| SOFA 24 hours | 1.00 | 1.000 | 1.000 | .000 |
| | 2.50 | 1.000 | .938 | .063 |
| | 3.50 | 1.000 | .906 | .094 |
| | 4.50 | 1.000 | .813 | .188 |
| | 5.50 | 1.000 | .750 | .250 |
| | 6.50 | 1.000 | .594 | .406 |
| | 7.50 | 1.000 | .563 | .438 |
| | 8.50 | .857 | .500 | .500 |
| | **9.50** | **.857** | **.188** | **.813** |
| | **10.50** | **.857** | **.156** | **.844** |
| | 11.50 | .714 | .125 | .875 |
| | 12.50 | .571 | .063 | .938 |
| | 13.50 | .429 | .063 | .938 |
| | 15.00 | .286 | .031 | .969 |
| | 17.00 | .143 | .000 | 1.000 |
| | 19.00 | .000 | .000 | 1.000 |
| | -1.00 | 1.000 | 1.000 | .000 |
| | .50 | 1.000 | .969 | .031 |
| | 1.50 | 1.000 | .719 | .281 |
| | 3.00 | 1.000 | .594 | .406 |
| | 4.50 | 1.000 | .500 | .500 |
| | 5.50 | 1.000 | .469 | .531 |
| | 6.50 | 1.000 | .438 | .563 |
| | 7.50 | 1.000 | .375 | .625 |
| | 8.50 | 1.000 | .281 | .719 |
| | 9.50 | 1.000 | .188 | .813 |
| | **10.50** | **1.000** | **.156** | **.844** |
| | **11.50** | **1.000** | **.125** | **.875** |
| | 12.50 | .857 | .094 | .906 |
| | 14.00 | .857 | .000 | 1.000 |
| | 15.50 | .714 | .000 | 1.000 |
| | 17.00 | .429 | .000 | 1.000 |
| | 19.00 | .000 | .000 | 1.000 |

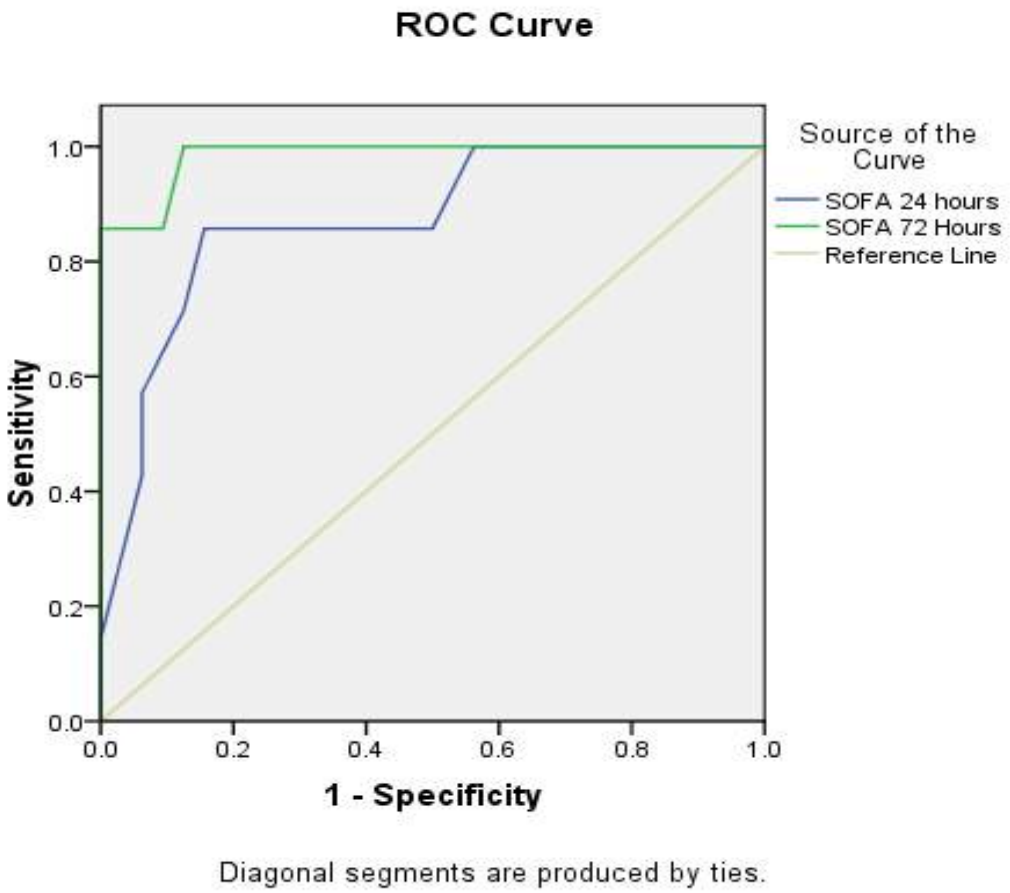


**Figure 60: ROC curve for age group 1 year – 5 years**

**Table 49: AUROC for age group 5 years – 10 years**

**Area Under the Curve**

| Test Result Variable(s) | Area | Std. Error | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.835 | 0.087 | 0.003 | 0.659 | 1.000 |
| SOFA 72 Hours | 0.996 | 0.006 | 0.000 | 0.000 | 1.000 |

We derived ROC curve for patients of age-group 5 years to 10 years. The area under the ROC curve for SOFA at 24 hours was 0.835 with S.D. of 0.087 (p-value 0.003). The area under the ROC curve for SOFA at 72 hours was 0.996 with S.D. of 0.006 (p-value 0.000).

**Coordinates of the Curve**

| Test Result Variable(s) | Positive if Greater Than or Equal To | Sensitivity | 1 - Specificity | Specificity |
|---|---|---|---|---|
| SOFA 24 hours | 1.00 | 1.000 | 1.000 | .000 |
| | 2.50 | 1.000 | .931 | .069 |
| | 3.50 | 1.000 | .897 | .103 |
| | 4.50 | 1.000 | .862 | .138 |
| | 5.50 | 1.000 | .828 | .172 |
| | 6.50 | .889 | .724 | .276 |
| | 7.50 | .889 | .552 | .448 |
| | 8.50 | .889 | .483 | .517 |
| | 9.50 | .889 | .448 | .552 |
| | **10.50** | **.889** | **.345** | **.655** |
| | **11.50** | **.667** | **.207** | **.793** |
| | 12.50 | .667 | .069 | .931 |
| | 13.50 | .556 | .034 | .966 |
| | 14.50 | .222 | .034 | .966 |
| | 15.50 | .222 | .000 | 1.000 |
| | 16.50 | .111 | .000 | 1.000 |
| | 18.00 | .000 | .000 | 1.000 |
| SOFA 72 Hours | -1.00 | 1.000 | 1.000 | .000 |
| | .50 | 1.000 | .931 | .069 |
| | 1.50 | 1.000 | .897 | .103 |
| | 2.50 | 1.000 | .862 | .138 |
| | 4.00 | 1.000 | .759 | .241 |
| | 5.50 | 1.000 | .517 | .483 |
| | 6.50 | 1.000 | .483 | .517 |
| | 7.50 | 1.000 | .345 | .655 |
| | 8.50 | 1.000 | .310 | .690 |
| | 9.50 | 1.000 | .241 | .759 |
| | 10.50 | 1.000 | .138 | .862 |
| | **11.50** | **1.000** | **.069** | **.931** |
| | **12.50** | **1.000** | **.034** | **.966** |
| | 14.00 | .778 | .000 | 1.000 |
| | 15.50 | .667 | .000 | 1.000 |
| | 17.00 | .333 | .000 | 1.000 |
| | 19.00 | .000 | .000 | 1.000 |

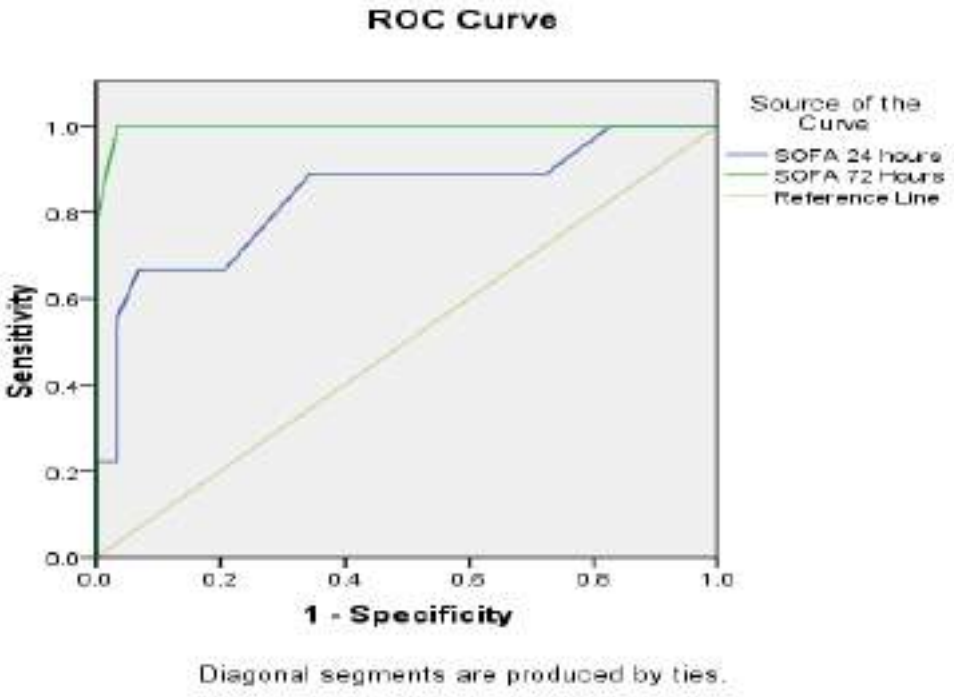


**Figure 61: ROC curve for age group 5 years – 10 years**

**Table 50: AUROC for age group > 10 years**

**Area Under the Curve**

| Test Result Variable (s) | Area | Std. Error | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.701 | 0.085 | 0.046 | 0.535 | 0.866 |
| SOFA 72 hours | 0.895 | 0.046 | 0.000 | 0.804 | 0.986 |

The ROC curve for patients > 10 years age was also derived. The area under the ROC curve for SOFA at 24 hours was 0.701 with S.D. 0.085 (p-value 0.046) and for SOFA at 72 hours, the area under the ROC was 0.895 with S.D. of 0.046 (p-value 0.000).

**Coordinates of the Curve**

| Test Result Variable (s) | Positive if Greater Than or Equal To | Sensitivity | 1 – Specificity | Specificity |
|---|---|---|---|---|
| SOFA 24 hours | .00 | 1.000 | 1.000 | .000 |
| | 2.00 | 1.000 | .972 | .028 |
| | 3.50 | 1.000 | .917 | .083 |
| | 4.50 | .909 | .750 | .250 |
| | 5.50 | .909 | .722 | .278 |
| | 6.50 | .909 | .667 | .333 |
| | 7.50 | .909 | .611 | .389 |
| | 8.50 | .818 | .500 | .500 |
| | **9.50** | **.818** | **.472** | **.528** |
| | **10.50** | **.818** | **.417** | **.583** |
| | **11.50** | **.636** | **.278** | **.722** |
| | 12.50 | .455 | .250 | .750 |
| | 13.50 | .273 | .167 | .833 |
| | 14.50 | .091 | .083 | .917 |
| | 15.50 | .091 | .056 | .944 |
| | 17.00 | .091 | .028 | .972 |
| | 19.00 | .000 | .000 | 1.000 |
| SOFA 72 Hours | -1.00 | 1.000 | 1.000 | .000 |
| | .50 | 1.000 | .944 | .056 |
| | 1.50 | 1.000 | .861 | .139 |
| | 2.50 | 1.000 | .833 | .167 |
| | 3.50 | 1.000 | .750 | .250 |
| | 4.50 | 1.000 | .667 | .333 |
| | 5.50 | 1.000 | .528 | .472 |
| | **6.50** | **1.000** | **.417** | **.583** |
| | **7.50** | **1.000** | **.333** | **.667** |
| | 8.50 | .818 | .250 | .750 |
| | 9.50 | .818 | .222 | .778 |
| | 11.00 | .727 | .194 | .806 |
| | 12.50 | .727 | .139 | .861 |
| | 13.50 | .636 | .111 | .889 |
| | 14.50 | .545 | .111 | .889 |
| | 15.50 | .545 | .056 | .944 |
| | 16.50 | .364 | .028 | .972 |
| | 18.50 | .273 | .028 | .972 |
| | 20.50 | .182 | .000 | 1.000 |
| | 22.50 | .091 | .000 | 1.000 |
| | 25.00 | .000 | .000 | 1.000 |

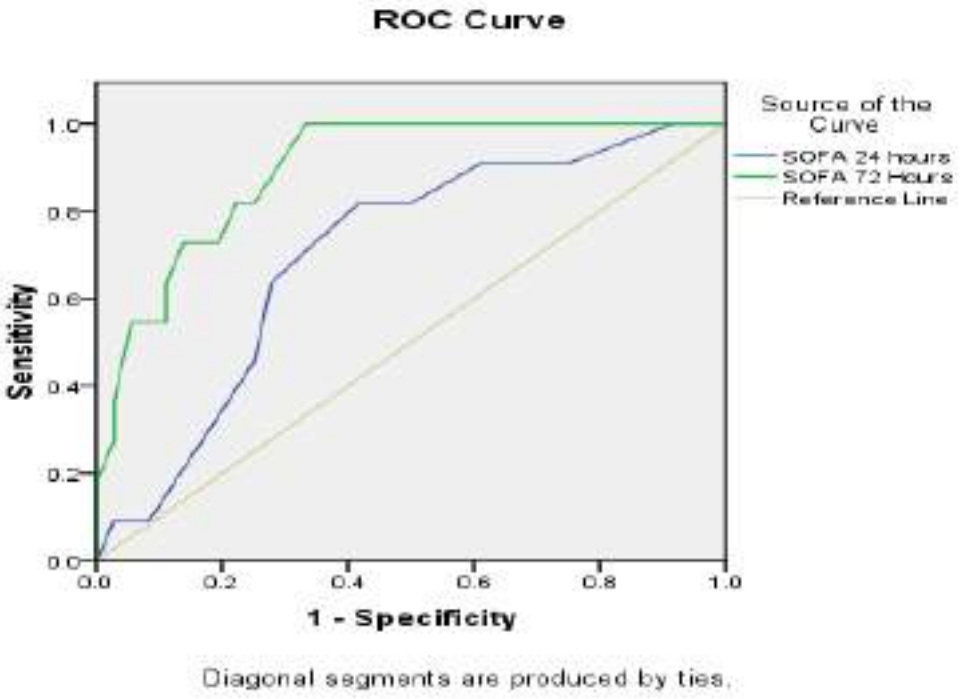


**Figure 62: ROC curve for age group >10 years**

In this study, we compared the role of SOFA score in predicting outcome in different age-groups. The area under the ROC curve at 24 hours and 72 hours for different age-groups were compared**.** For 1 month-1 years, 0.871 and 0.952 at 24 hours and 72 hours respectively; for 1 year- 5 years, 0.873 and 0.984 at 24 hours and 72 hours respectively; for 5-10 years, 0.835 and 0.996 respectively and for >10 years, 0.701 and 0.895 at 24 hours and 72 hours respectively.

As per the coordinates of the ROC curve, we derived the cut-off for SOFA score at 24 hours and 72 hours for different age-groups. It was found that for age group 1 month-1 year, the cut-offs for SOFA score at 24 hours and 72 hours was 7 and 8 respectively, whereas, for age group 1-5 years the cut-offs were 10 and 11, 5-10 years age group had cut-offs 11 and 12 respectively and for >10 years age, the cut-offs for SOFA score were 10 and 7 at 24 and 72 hours respectively. But for the sake of convenience, in our study, the cut-offs were taken for all the patients instead of individual age groups as there was not a very significant difference noted between the cut-offs in different age groups.

## 2. GENDER :

**2a: Table 51: Comparison of outcome with SOFA 24 hours in males and females**

| Gender | | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Died | | Discharged | | | | |
| Females | SOFA 24 hours | < 10 | 3 | 9% | 29 | 91% | 32 | 8.623 | 0.008 |
| | | ≥ 10 | 10 | 43% | 13 | 57% | 23 | | |
| | Total | | 13 | 24% | 42 | 76% | 55 | | |
| Males | SOFA 24 hours | < 10 | 3 | 6% | 46 | 94% | 49 | 16.877 | 0.001 |
| | | ≥ 10 | 16 | 43% | 21 | 57% | 37 | | |
| | Total | | 19 | 22% | 67 | 78% | 86 | | |

In this study, comparison of outcome and SOFA score at 24 hours separately in males and females. Out of the total 150 patients, 9 patients went DAMA so, were excluded and rest 141 patients were included in the correlation study. Out of 141 patients, 55 were females and rest 86 were males. Out of the 55 females, 32 had SOFA score of <10 out of which 29 patients (91%) were discharged and 3 patients (9%) died. Twenty three females had a SOFA score of ≥10 out of which 13 patients (57%) were discharged and 10 (43%) died. There were 86 males out of the total 141 patients where 49 patients had a SOFA score of <10 and 37 patients had ≥10 SOFA score. There were 49 patients with <10 SOFA score out of which 46 (94%) were discharged and 3 patients (6%) died.

Out of the 37 males with a SOFA score of ≥10, 21 patients (57%) were discharged and 16 patients (43%) died. A p value of 0.001 was found which was significant.

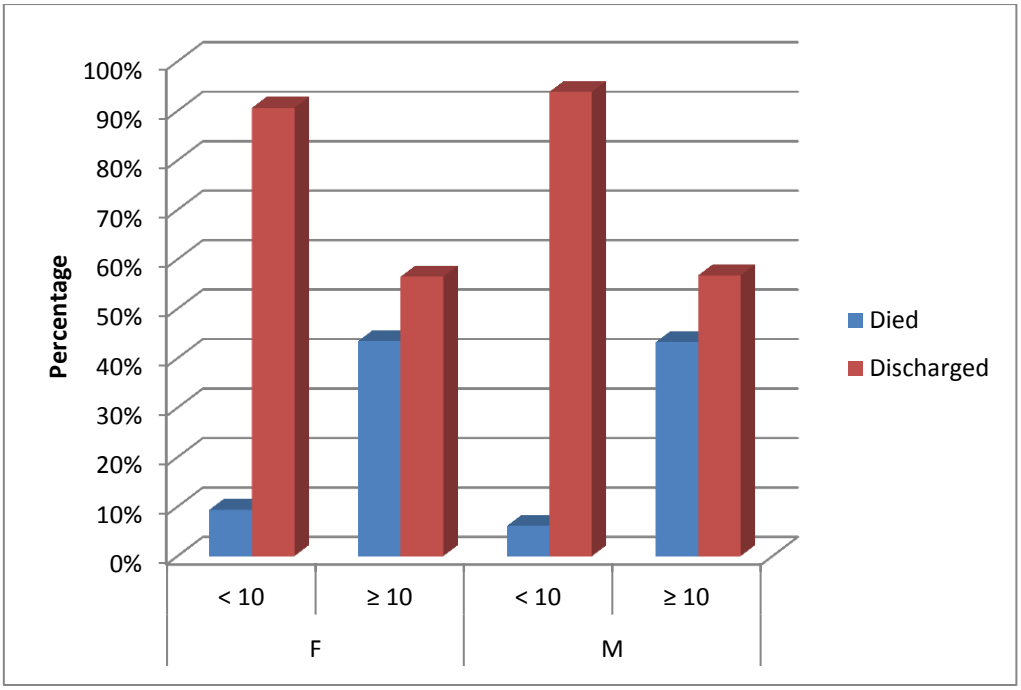


**Figure 63: Comparison of outcome with SOFA 24 hours in males and females**

**2b: Table 52: Comparison of outcome with SOFA 72 hours in males and females**

| Gender | | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | | | Died | | Discharged | | | | |
| Females | SOFA 72 hours | < 10 | 2 | 6% | 33 | 94% | 35 | 17.128 | 0.001 |
| | | ≥ 10 | 11 | 55% | 9 | 45% | 20 | | |
| | Total | | 13 | 24% | 42 | 76% | 55 | | |
| Males | SOFA 72 hours | < 10 | 0 | 0% | 57 | 100% | 57 | 47.935 | 0.001 |
| | | ≥ 10 | 19 | 66% | 10 | 34% | 29 | | |
| | Total | | 19 | 22% | 67 | 78% | 86 | | |

In this study, comparison of outcome and SOFA score at 72 hours was done separately in males and females. Out of the total 150 patients, 9 patients who went DAMA were excluded and rest 141 patients were included in the correlation study. Out of 141 patients, 55 were females and rest 86 were males. Out of the 55 females, 35 had SOFA score of <10 out of which 33 patients (94%) were discharged and 2 patients (6%) died. Twenty females had a SOFA score of ≥10 out of which 9 patients (45%) were discharged and 11 (55%) died. There were 86 males out of the total 141 patients where 57 patients had a SOFA score of <10 and all these 57 patients (100%) were discharged. There were 29 male patients with ≥10 SOFA score out of which 10 (34%) were discharged and 19 patients (66%) died. A p value of 0.001 was found which was significant.

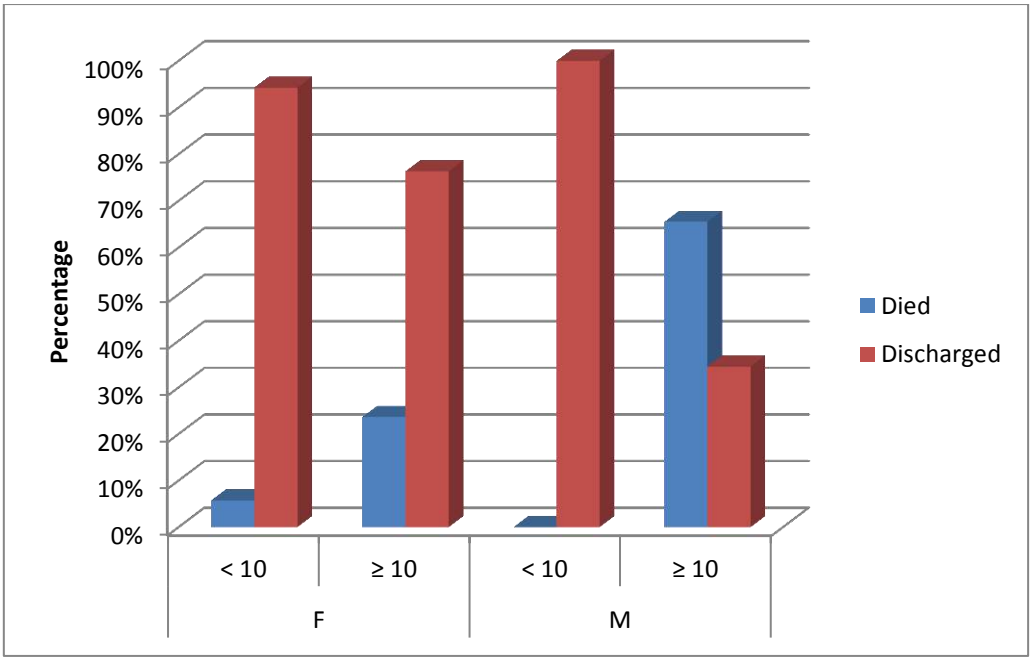


**Figure 64: Comparison of outcome with SOFA 72 hours in males and females**

**2c : Area under ROC curve for SOFA at 24 hours and SOFA at 72 hours for Males and Females separately.**

**Table 53: Area under ROC curve for Males**

**Area Under the Curve**

| Test Result Variable (s) | Area | Std. Error | p- value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.849 | 0.042 | 0.000 | 0.766 | 0.931 |
| SOFA 72 Hours | 0.973 | 0.014 | 0.000 | 0.944 | 1.000 |

The area under the ROC curve for SOFA at 24 hours is 0.849 with a S.D. 0.042 (p-value 0.000). The SOFA score at 72 hours has an area under ROC curve of 0.973 with S.D. of 0.014 (p-value 0.000).

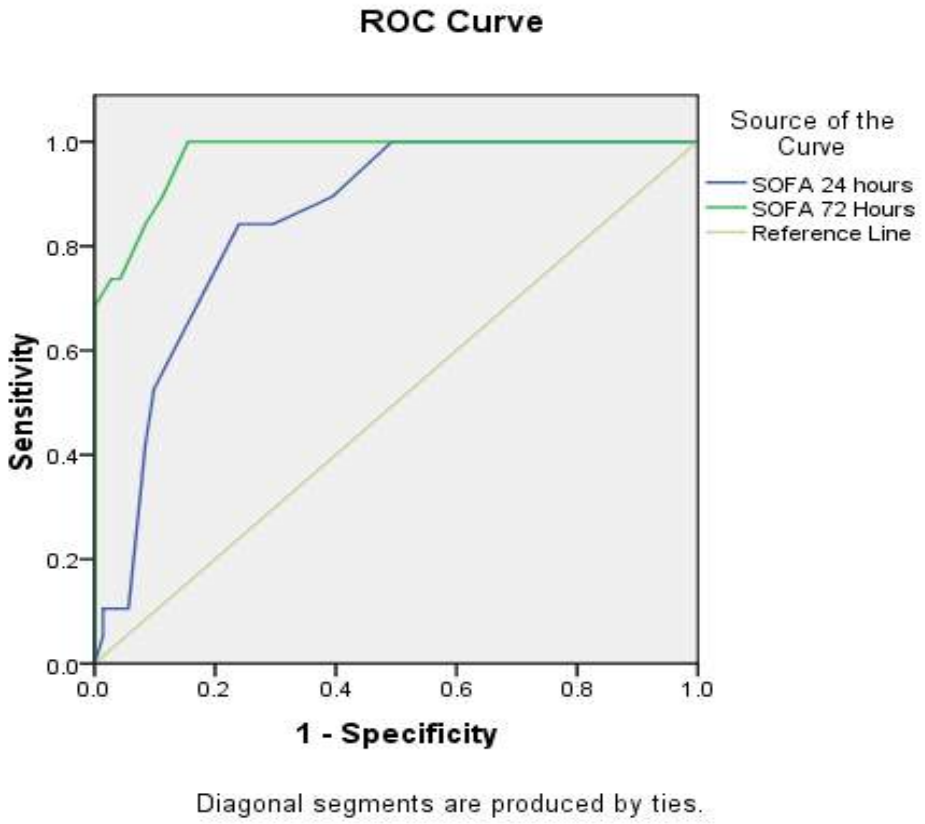


**Figure 65: ROC curve for Males**

**Table 54: Area under ROC curve for Females**

**Area Under the Curve**

| Test Result Variable(s) | Area | Std. Error | p-value | Asymptotic 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| SOFA 24 hours | 0.745 | 0.085 | 0.007 | 0.577 | 0.912 |
| SOFA 72 Hours | 0.906 | 0.042 | 0.000 | 0.823 | 0.989 |

The area under the ROC curve for SOFA score at 24 hours in females is 0.745 with S.D. of 0.085 (p-value 0.007). The area under the ROC curve for SOFA score at 72 hours in females is 0.906 with S.D. of 0.042 (p-value 0.042).

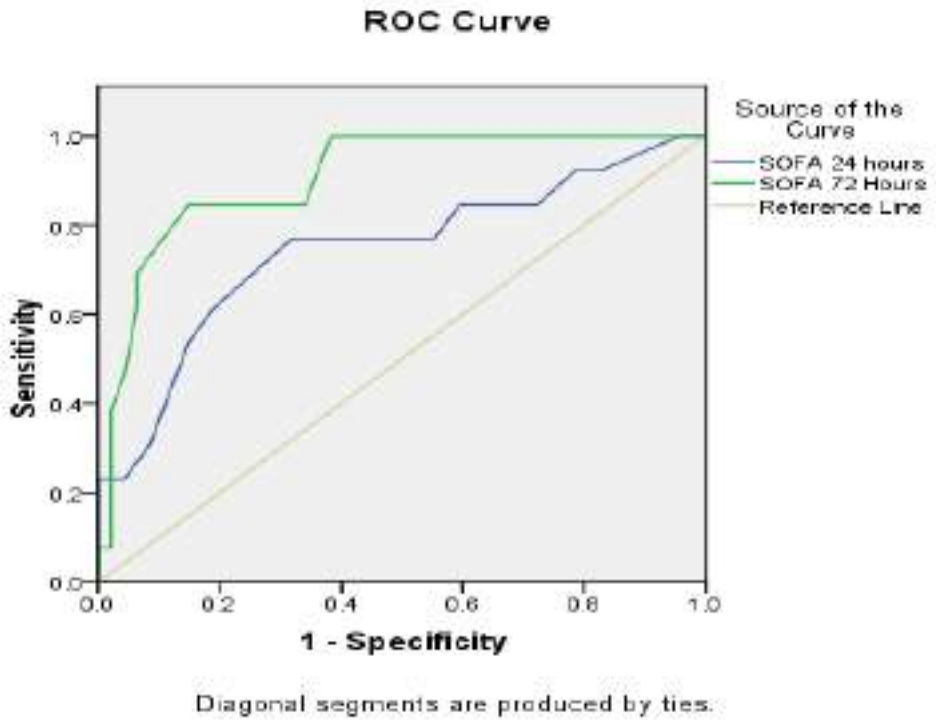


**Figure 66: ROC curve for Females**

In the comparative study to establish the role of SOFA score in predicting outcome in males and females, it was seen that SOFA score had slightly better AUROC in males (i.e.0.849 at 24 hours and 0.973 at 72 hours) than females (i.e. 0.745 at 24 hours and 0.906 at 24 hours).

### 3. PRIMARY SYSTEM INVOLVEMENT :

**Table 55: Primary System involvement with cut-off of SOFA at 24 hours**

| | SOFA 24 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| Primary System Involved | < 10 | | ≥ 10 | | | | |
| CNS | 17 | 81% | 4 | 19% | 21 | 14.953 | 0.037 |
| CVS | 2 | 50% | 2 | 50% | 4 | | |
| Endocrinology | 4 | 100% | 0 | 0% | 4 | | |
| GIT | 17 | 55% | 14 | 45% | 31 | | |
| Musculoskeletal | 6 | 60% | 4 | 40% | 10 | | |
| Renal | 4 | 100% | 0 | 0% | 4 | | |
| Respiratory | 36 | 48% | 39 | 52% | 75 | | |
| Rheumatology | 0 | 0% | 1 | 100% | 1 | | |
| Total | 86 | 57% | 64 | 43% | 150 | | |

As shown in the table, SOFA score <10 was found in 86 patients (57%) and 64 patients (43%) had a SOFA score ≥10. There were total 21 CNS cases out of which 17 (81%) had a SOFA score <10 and 4 (19%) had a score of ≥10. There were 4 patients with CVS as primary abnormality and 2 patients (50%) had a score of <10 and the other 2 patients (50%) had a SOFA score ≥10.In endocrine system, there were 4 patients and all 4 (100%) had a SOFA score <10.There were total 31 patients having GIT as the primary system involved out of which 17 (55%) had a SOFA score <10 and 14 (45%) had a SOFA score ≥10. Total 10 patients had musculoskeletal system involvement out of which 6 (60%) had a SOFA score <10 and 4 (40%) had a score ≥10. There were 4 patients with renal system abnormality where all 4 patients had a SOFA score of <10. Respiratory system abnormality was found in total 75 patients. Out of these 75 patients, 36 (48%) had a SOFA score <10 and 39 (52%) had a SOFA score ≥10. One patient presented with rheumatological illness who had a SOFA score of ≥10. This data was statistically significant with a p value of 0.037.

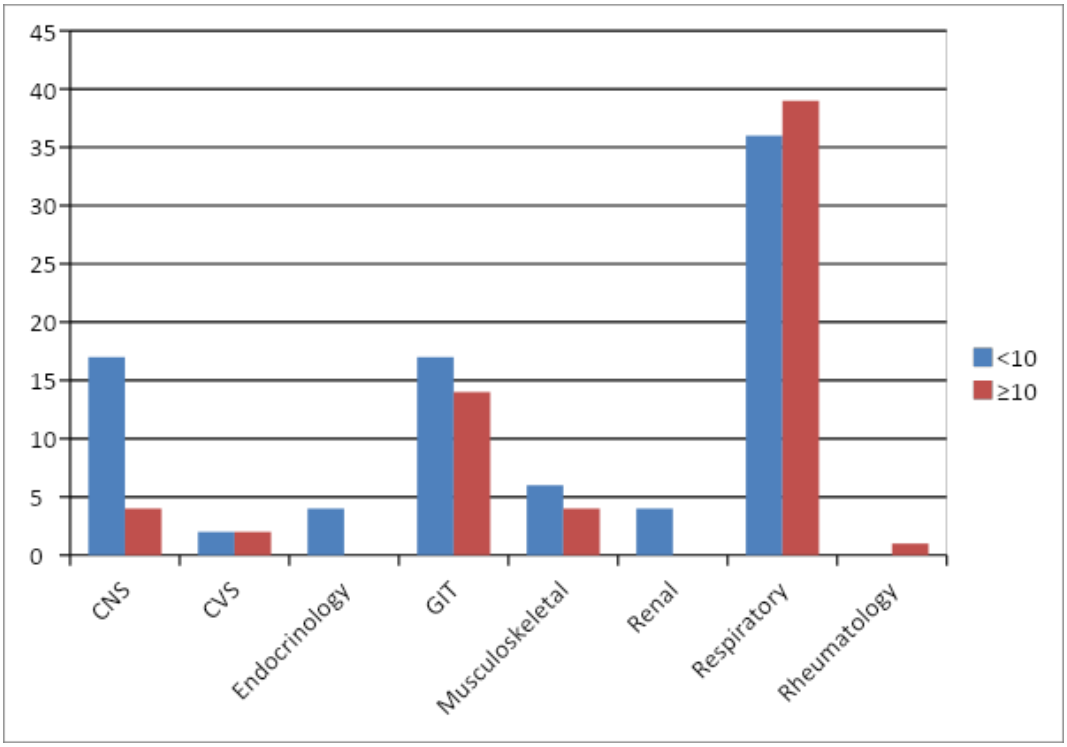


**Figure 67: Primary System involvement with cut-off of SOFA at 24 hours**

**Table 56: Primary system involvement with cut-off of SOFA at 72 hours**

| Primary System Involved | SOFA 72 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| | < 10 | | ≥ 10 | | | | |
| CNS | 15 | 71% | 6 | 29% | 21 | 11.077 | 0.135 |
| CVS | 0 | 0% | 4 | 100 % | 4 | | |
| Endocrinology | 3 | 75% | 1 | 25% | 4 | | |
| GIT | 23 | 74% | 8 | 26% | 31 | | |
| Musculoskeletal | 7 | 70% | 3 | 30% | 10 | | |
| Renal | 3 | 75% | 1 | 25% | 4 | | |
| Respiratory | 44 | 59% | 31 | 41% | 75 | | |
| Rheumatology | 1 | 100% | 0 | 0% | 1 | | |
| Total | 96 | 64% | 54 | 36% | 150 | | |

As shown in the table, SOFA score <10 was found in 96 patients (64%) and 54 patients (36%) had a SOFA score ≥10. There were total 21 CNS cases out of which 15 (71%) had a SOFA score <10 and 6 (29%) had a score of ≥10. There were 4 patients with CVS as primary abnormality and all 4 patients (100%) had a SOFA score of ≥10. In endocrine system, there were 4 patients out of which 3 patients (75%) had a SOFA score <10 and 1 patient (25%) had a SOFA score of ≥10. There were total 31 patients having GIT as the primary system involved out of which 23 (74%) had a SOFA score <10 and 8 (26%) had a SOFA score ≥10. Total 10 patients had musculoskeletal involvement as the primary system involved out of which 7 (70%) had a SOFA score <10 and 3 (30%) had a score ≥10. There were 4 patients with renal system abnormality out of which 3 patients (75%) had a SOFA score <10 and 1 patient (25%) had a SOFA score ≥10. Respiratory system abnormality was found in total 75 patients out of which 44 patients (59%) had a SOFA score <10 and 31 (41%) had a SOFA score ≥10. One patient with primary rheumatological system had a SOFA score of <10 at 72 hours.

There was no statistical significance found in this data with a p value of 0.135.

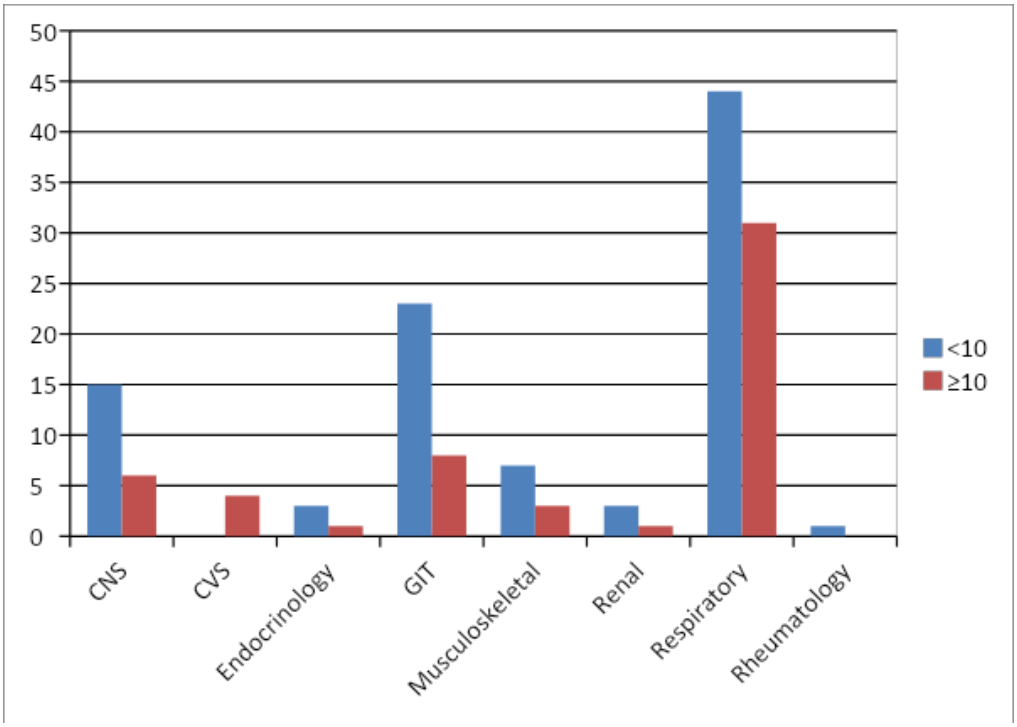


**Figure 68: Primary system involvement with cut-off of SOFA at 72 hours**

## 4. DURATION OF STAY :

### 4a: Table 57: Correlation of SOFA and qSOFA score with duration of ICU stay

| | < 7 days (n= 107) | | > 7 days (n= 34) | | T | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | Lower | Upper |
| SOFA 24 hours | 9.06 | 3.94 | 8.68 | 4.04 | 0.487 | 0.627 | -1.16 | 1.92 |
| SOFA 72 hours | 7.82 | 6.13 | 8.29 | 4.66 | -0.412 | 0.681 | -2.73 | 1.79 |
| Quick SOFA | 2.46 | 0.68 | 2.41 | 0.82 | 0.329 | 0.743 | -0.23 | 0.32 |

The correlation of SOFA and qSOFA score with duration of stay in ICU was done. Morbidity was defined as a prolonged ICU stay (i.e. >7 days). Mean score of total SOFA (24 hours) was 9.06 ± 3.94 in patients who stayed in less than 7 days and 8.68 ± 4.04 in patients who stayed in more than 7 days with an insignificant p value of 0.627. Mean score of total SOFA score (72 hours) was 7.82 ± 6.13 in patients who stayed in less than 7 days and 8.29 ± 4.66 in patients who stayed in more than 7 days with a p value of 0.681 which was not significant. Mean total quick SOFA score was 2.46 ± 0.68 in patients who stayed in less than 7 days and 2.41 ± 0.82 who had an ICU stay of more than 7 days with an insignificant p value of 0.743.

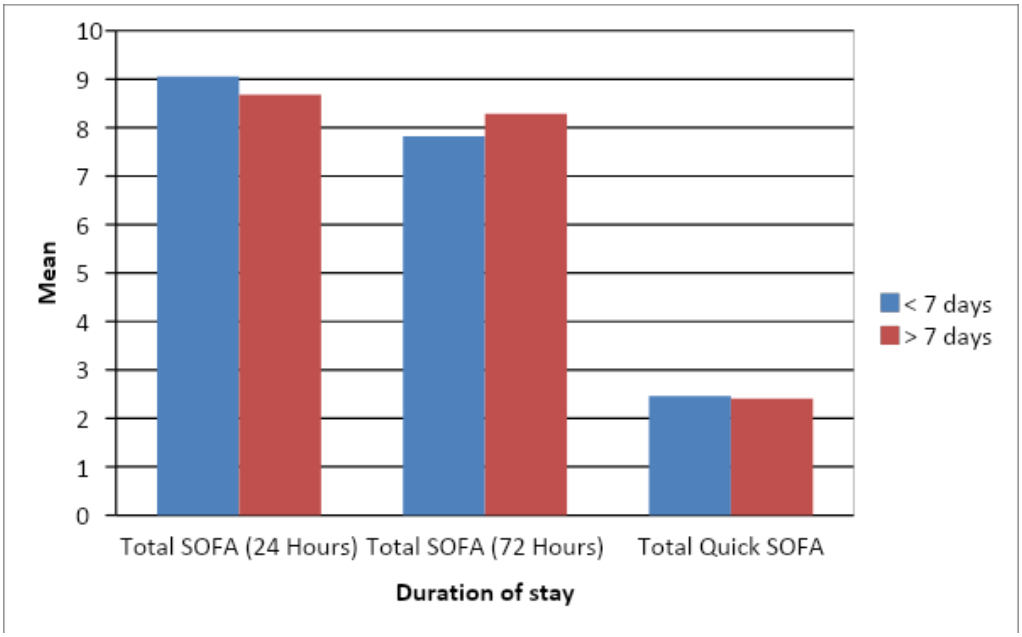


**Figure 69: Correlation of SOFA and qSOFA score with duration of ICU stay**

**4b: Table 58: Comparison of SOFA score and quick SOFA score and duration of stay**

| | | SOFA 24 hours | SOFA 72 Hours | Quick SOFA |
|---|---|---|---|---|
| Duration of Stay | Pearson Correlation | 0.012 | 0.074 | -0.016 |
| | p-value | 0.891 | 0.380 | 0.854 |
| | N | 141 | 141 | 141 |

We compared the duration of stay with SOFA score. Pearson correlation in SOFA score (24 hours) was 0.012, in SOFA (72 hours) was 0.074 and in qSOFA was -0.016. The p values in each category were not significant being 0.891, 0.380 and 0.854 respectively.

## 5. VENTILATION :

### 5a. Table 59: Effect of SOFA score at 24 hours on ventilation

| Ventilation | SOFA 24 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| | < 10 | | ≥ 10 | | | | |
| No | 24 | 92% | 2 | 8% | 26 | 15.727 | 0.001 |
| Yes | 62 | 50% | 62 | 50% | 124 | | |
| Total | 86 | 57% | 64 | 43% | 150 | | |

In this study, effect of SOFA score at 24 hours was seen on need for ventilation. It was seen that out of 150 patients, total 124 patients required ventilation out of which 62 (50%) had a SOFA score <10 at 24 hours and 62 (50%) had a SOFA score ≥10. Whereas, 26 patients did not require any form of ventilation out of which 24 (92%) had a SOFA score <10 and 2 (8%) had a SOFA score ≥10. The data was statistically significant with a p value of 0.001.

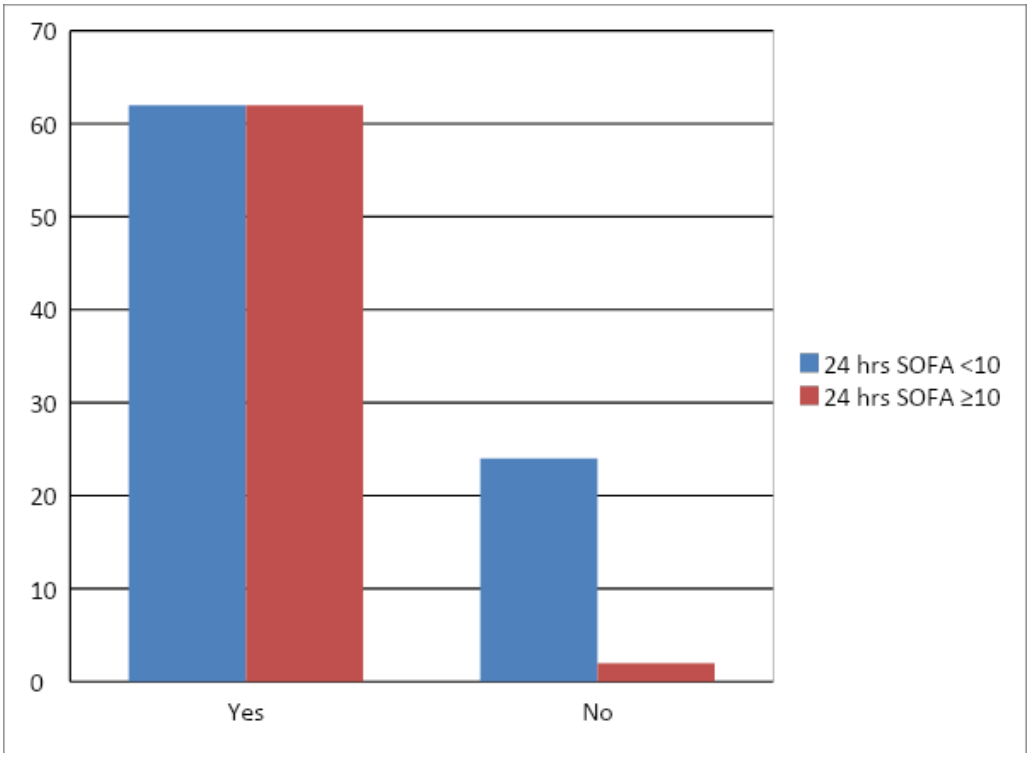


**Figure 70: Effect of SOFA score at 24 hours on ventilation**

**5b: Table 60: Effect of SOFA score at 72 hours on ventilation**

| | SOFA 72 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| Ventilation | < 10 | | ≥ 10 | | | | |
| No | 25 | 96% | 1 | 4% | 26 | 14.113 | 0.001 |
| Yes | 71 | 57% | 53 | 43% | 124 | | |
| Total | 96 | 64% | 54 | 36% | 150 | | |

In this study, correlation of effect of SOFA score at 72 hours with the need for ventilation was done. It was seen that out of 150 patients, total 124 patients required ventilation out of which 71 (57%) had a SOFA score <10 at 72 hours and 53 (43%) had a SOFA score ≥10. Whereas, 26 patients did not require any form of ventilation out of which all 25 (96%) had a SOFA score <10 and 1 (4%) had a SOFA score ≥10. The data was statistically significant with a p value of 0.001.

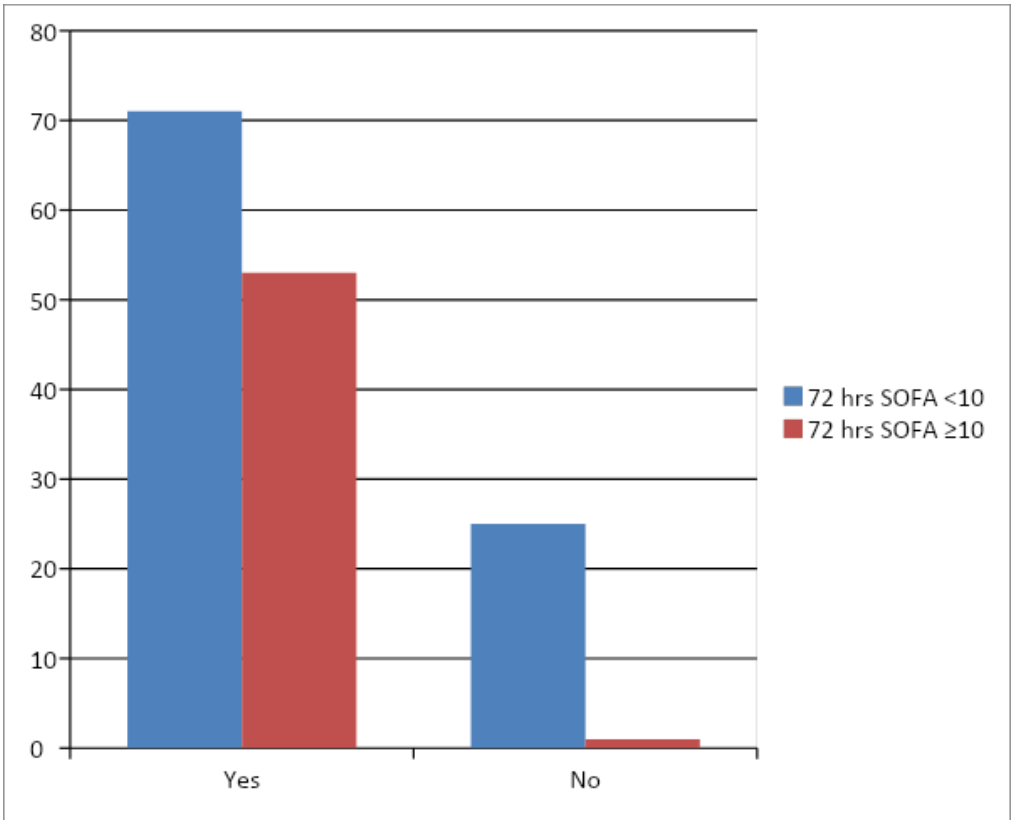


**Figure 71: Effect of SOFA score at 72 hours on ventilation**

**5c: Table 61: Effect of SOFA score at 24 hours on the form of ventilation**

| | SOFA 24 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| Invasive/ non Invasive | < 10 | | ≥ 10 | | | | |
| Invasive | 37 | 45% | 45 | 55% | 82 | 2.3 | 0.129 |
| Non invasive | 25 | 60% | 17 | 40% | 42 | | |
| Total | 62 | 50% | 62 | 50% | 124 | | |

In this study, effect of SOFA score at 24 hours was seen on the form of ventilation. It was seen that out of 124 patients who required ventilation, 82 patients required invasive ventilation and 42 patients required non-invasive ventilation. Out of 82 invasive ventilations, 37 patients (45%) had a SOFA score <10 at 24 hours and 45 (55%) had a SOFA score ≥10. Whereas, among non-invasive ventilation, out of 42 patients, 25 patients (60%) had a SOFA score <10 and 17 patients (40%) had a SOFA score ≥10. The data was statistically insignificant with a p value of 0.129.

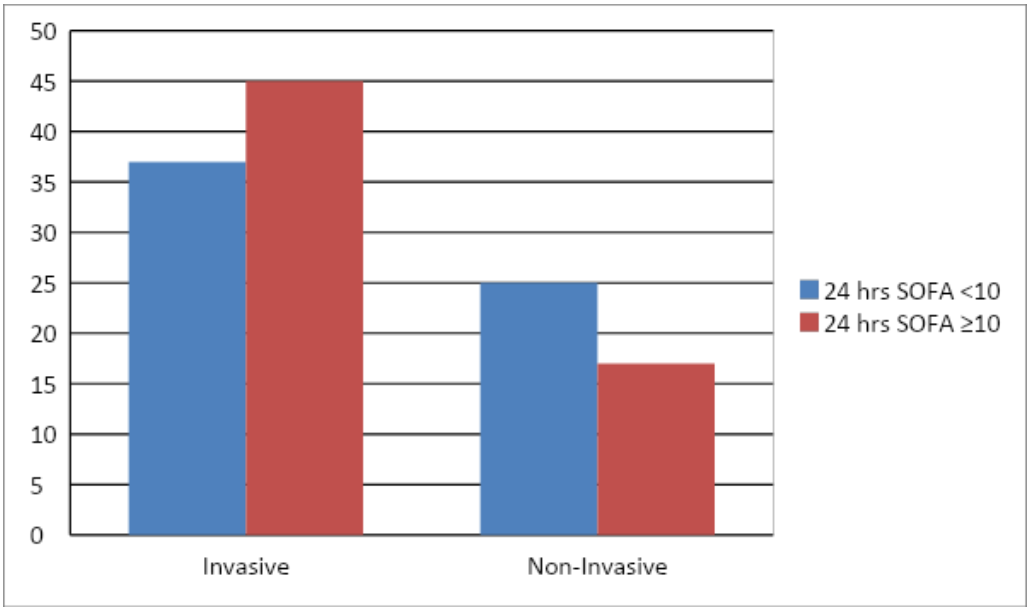


**Figure 72: Effect of SOFA score at 24 hours on the form of ventilation**

**5d: Table 62: Effect of SOFA score at 72 hours on the form of ventilation**

| | SOFA 72 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| Invasive/ non Invasive | < 10 | | ≥ 10 | | | | |
| Invasive | 36 | 44% | 46 | 56% | 82 | 17.645 | 0.001 |
| Non invasive | 35 | 83% | 7 | 17% | 42 | | |
| Total | 71 | 57% | 53 | 43% | 124 | | |

In this study, effect of SOFA score at 72 hours was seen on the form of ventilation. It was seen that out of 124 patients who required ventilation, 82 underwent invasive ventilation and 42 underwent non-invasive ventilation. Out of 82 invasive ventilations, 36 patients (44%) had a SOFA score <10 at 72 hours and 46 (56%) had a SOFA score ≥10. Whereas, among non-invasive ventilation, out of 42, 35 patients (83%) had a SOFA score <10 and 7 patients (17%) had a SOFA score ≥10. The data was statistically significant with a p value of 0.001.

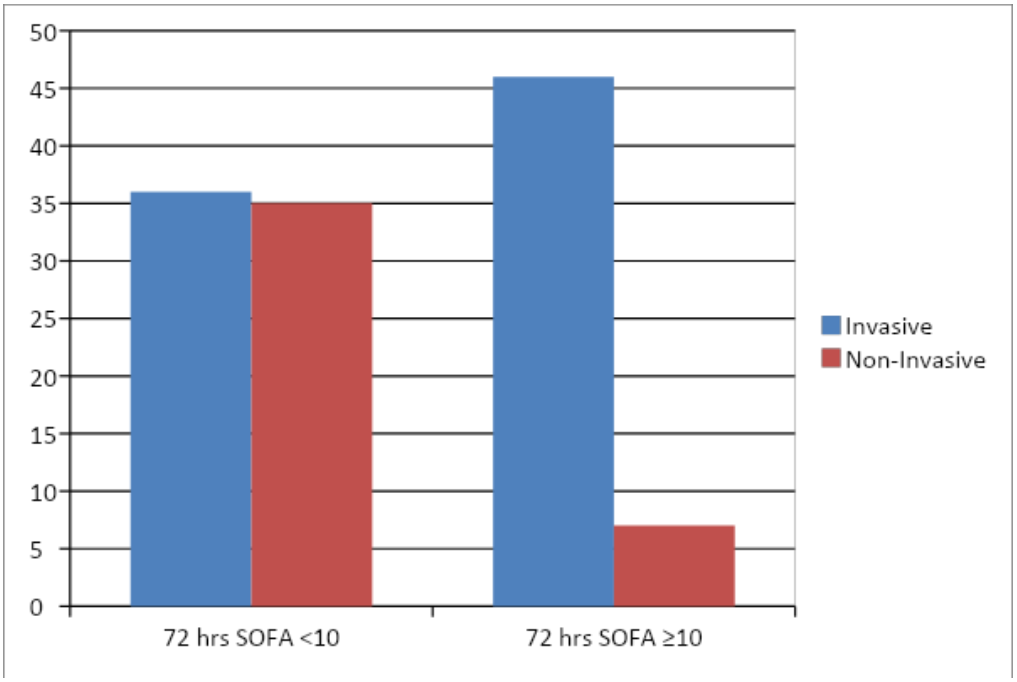


**Figure 73: Effect of SOFA score at 72 hours on the form of ventilation**

## 6. BLOOD PRESSURE :

### 6a: Table 63: Relation of SOFA score at 24 hours and BP status

| | SOFA 24 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| BP Interpretation | < 10 | | ≥ 10 | | | | |
| Hypertension | 1 | 100% | 0 | 0% | 1 | 31.36 | 0.001 |
| Hypotension | 21 | 32% | 44 | 68% | 65 | | |
| Normal | 59 | 79% | 16 | 21% | 75 | | |
| Total | 81 | 57% | 60 | 43% | 141 | | |

We studied the relation of SOFA score at 24 hours with BP status. Out of 141 patients (excluding DAMA), 75 patients had no hypotension, 1 was hypertensive and rest 65 patients had hypotension at admission. Out of 75 normotensive patients, 59 (79%) had a SOFA score <10 and 16 (21%) had a SOFA score ≥10. So, most of the normotensive patients had a lower SOFA 24 hours. Whereas, hypotension was recorded in 65 patients out of which, 21 patients (32%) had a SOFA score <10 and 44 patients (68%) had a SOFA score ≥10. Therefore most of the patients who presented with hypotension had a higher SOFA score 24 hours. The p value was 0.001 which was significant.

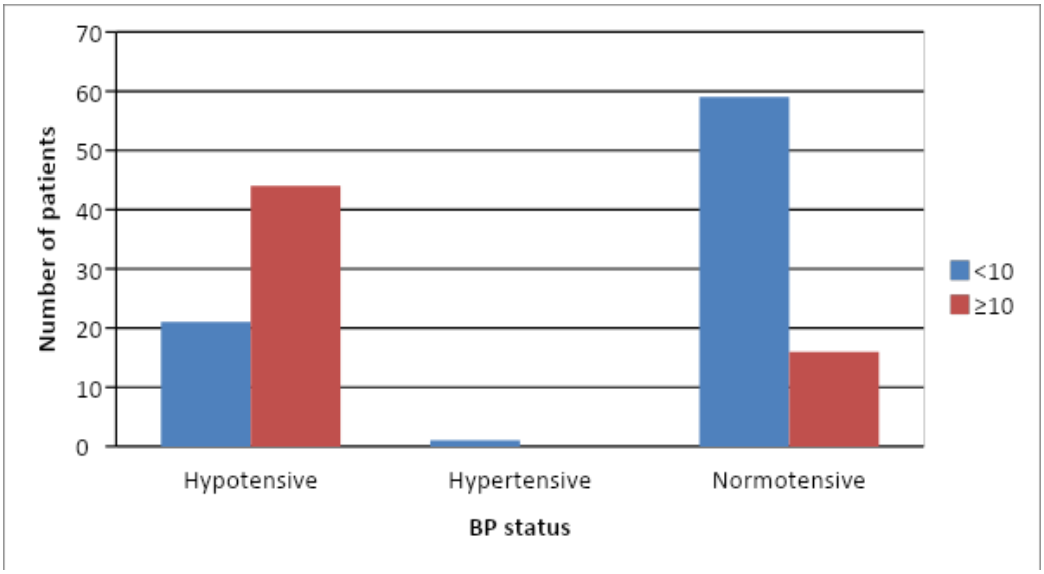


**Figure 74: SOFA score at 24 hours and BP status**

**Table 64: Relation of SOFA score at 72 hours and BP status**

| | SOFA 72 group | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|
| BP Interpretation | < 10 | | ≥ 10 | | | | |
| Hypertension | 1 | 100 % | 0 | 0% | 1 | 16.566 | 0.001 |
| Hypotension | 31 | 48% | 34 | 52% | 65 | | |
| Normal | 60 | 80% | 15 | 20% | 75 | | |
| Total | 92 | 65% | 49 | 35% | 141 | | |

We studied the relation of SOFA score at 72 hours and BP status. Out of 141 patients, excluding 9 patients who went DAMA, 75 patients had normal BP at admission, 65 patients had hypotension and 1 patients had hypertension. Out of 75 normotensive patients, 60 (80%) had a SOFA score <10 and 15 (20%) had a SOFA score ≥10. Therefore most of the patients who were normotensive had lower SOFA 72 hours scores. Whereas, hypotension was seen in 65 patients out of which, 31 patients (48%) had a SOFA score <10 and 34 (52%) had a SOFA score ≥10. Hence the patients who had hypotension had higher SOFA 72 hours scores. The p value was 0.001 which was significant.

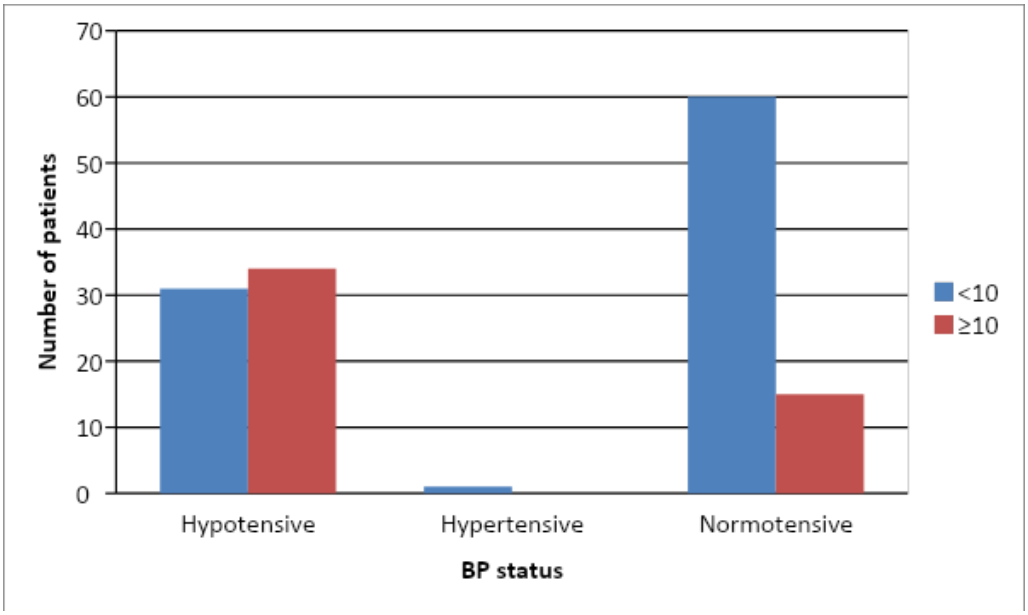


**Figure 75: Relation of SOFA score at 72 hours and BP status**

## II.MORTALITY

**Table 65: Effect of SOFA Score 24 hours on outcome**

| | Discharge (n= 109) | | Died (n= 32) | | T | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | Lower | Upper |
| Respiratory (24 hours) | 2.57 | 1.34 | 3.47 | 0.88 | -3.568 | 0.000 | -1.40 | -0.40 |
| Coagulation (24 hours) | 1.03 | 1.44 | 1.78 | 1.58 | -2.550 | 0.012 | -1.34 | -0.17 |
| Liver (24 hours) | 0.43 | 0.98 | 0.53 | 1.02 | -0.502 | 0.617 | -0.49 | 0.29 |
| CVH (24 hours) | 1.74 | 1.67 | 3.34 | 1.15 | -5.075 | 0.000 | -2.22 | -0.98 |
| CNS (24 hours) | 1.94 | 0.95 | 2.56 | 1.11 | -3.110 | 0.002 | -1.01 | -0.22 |
| Renal (24 hours) | 0.27 | 0.73 | 0.63 | 0.94 | -2.286 | 0.024 | -0.67 | -0.05 |
| SOFA (24 hours) | 7.98 | 3.60 | 12.31 | 3.22 | -6.118 | 0.000 | -5.73 | -2.93 |

In this study, effect of SOFA score on day 1 (24 hours) was seen on the outcome of patients. Out of 150 patients, 9 patients who went DAMA were excluded. Total SOFA score range was from 0-24.Mean score seen in discharged patients was 7.98 ± 3.60 and in patients who died was 12.31 ± 3.22 with a significant p value of 0.000 (p value <0.05 is significant). Individual parameters of SOFA score at 24 hours were compared in discharged as well as expired patients. In respiratory parameters, the mean score in discharged patients was found to be 2.57 ± 1.34and in expired patients was 3.47 ± 0.88 with a p value of 0.000 which was significant. In coagulation parameter, mean score in discharged patients was 1.03 ± 1.44 whereas in expired patients was 1.78 ± 1.58 with a p value of 0.012 (p value <0.05) which was significant. In liver profile, mean score in discharged patients was found to be 0.43 ± 0.98 whereas in patients who died was 0.53 ± 1.02 with an insignificant p value of 0.617. In CVS, discharged patients had a mean score of 1.74 ± 1.67 and patients who died had a score of 3.34 ± 1.15, the p value came out was significant (0.000 i.e. <0.05). In CNS,

discharged patients had a mean score of 1.94 ± 0.95 whereas in patients who died was 2.56 ± 1.11 with a significant p value of 0.002 (<0.05). Lastly, in renal parameter, mean SOFA score in discharged patients was 0.27 ± 0.73 and in expired patients was 0.63 ± 0.94 with a p value of 0.024 (<0.05) which was significant.

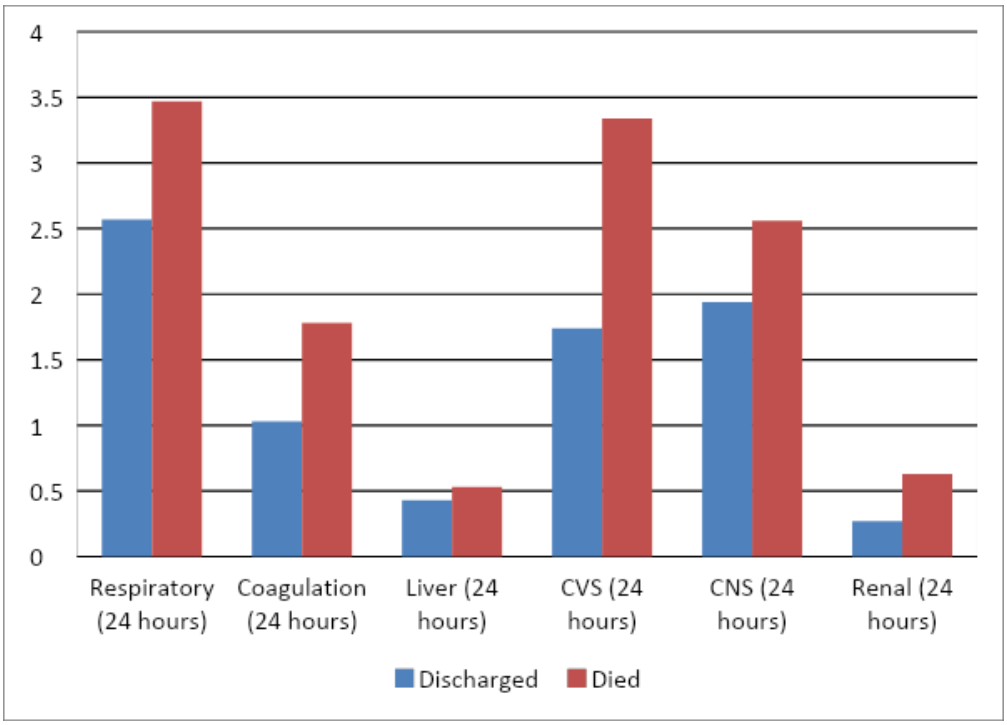


**Figure 76: Effect of SOFA Score 24 hours on outcome**

**Table 66: Effect of SOFA score 24 hours with cut-off on final outcome**

| | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Died | | Discharged | | | | |
| SOFA 24 hours | < 10 | 6 | 19% | 75 | 69% | 81 | 25.357 | 0.001 |
| | ≥ 10 | 26 | 81% | 34 | 31% | 60 | | |
| Total | | 32 | 100% | 109 | 100% | 141 | | |

As seen in the ROC curve (explained before), the cut-off of SOFA score at 24 hours in this study is 10. Out of 141 patients (DAMA excluded), 109 patients were discharged and 32 patients died. Among the discharged patients, 75 patients (69%) had a SOFA score<10 and 34 patients (31%) had a SOFA score of ≥10. Among the patients who died, 6 patients (19%) had a SOFA score of <10 whereas 26 patients (81%) had a SOFA score ≥10. The p value came out to be 0.001 (p value <0.05) which was significant.

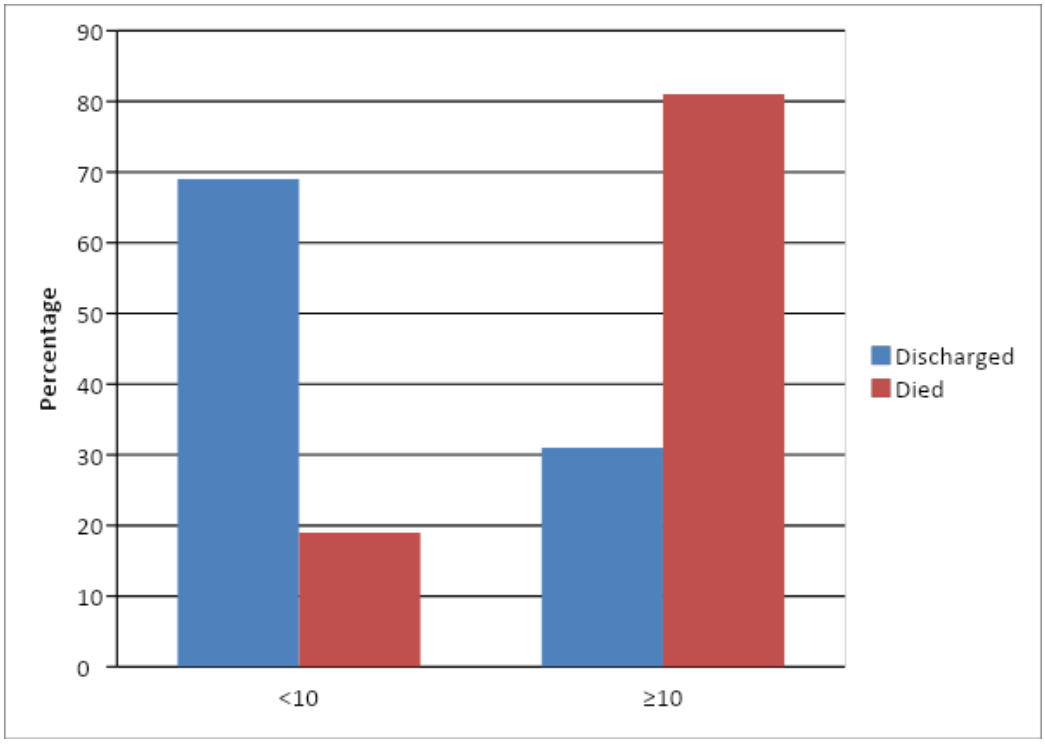


**Figure 77: Effect of SOFA Score 24 hours with cut-off on final outcome**

**Table 67: Effect of SOFA score 72 hours on outcome**

| | Discharged (n= 109) | | Died (n= 32) | | t | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | | Lower | Upper |
| Respiratory (72 hours) | 1.62 | 1.30 | 3.63 | 0.55 | -8.489 | 0.000 | -2.47 | -1.54 |
| Coagulation (72 hours) | 1.01 | 1.21 | 2.31 | 1.51 | -5.041 | 0.000 | -1.81 | -0.79 |
| Liver (72 hours) | 0.45 | 1.05 | 1.06 | 1.19 | -2.817 | 0.006 | -1.04 | -0.18 |
| CVS (72 hours) | 0.89 | 1.31 | 3.69 | 0.69 | -11.613 | 0.000 | -3.27 | -2.32 |
| CNS (72 hours) | 1.45 | 1.42 | 3.53 | 0.67 | -8.033 | 0.000 | -2.59 | -1.57 |
| Renal (72 hours) | 0.29 | 0.85 | 1.44 | 2.20 | -4.438 | 0.000 | -1.65 | -0.63 |
| Total SOFA (72 Hours) | 5.67 | 3.91 | 15.41 | 3.53 | -12.654 | 0.000 | -11.26 | -8.21 |

In our study, effect of SOFA score on day 3 (72 hours) was seen on the outcome of patients. Out of 150 patients, 9 patients who went DAMA were excluded. Total SOFA score range was from 0-24. Mean score seen in discharged patients was 5.67 ± 3.91and in patients who died was 15.41 ± 3.53 with a significant p value of 0.000 (p value <0.05). Individual parameters of SOFA score at 72 hours were compared in discharged as well as expired patients. In respiratory parameters, the mean score in discharged patients was found to be 1.62 ± 1.30 and in expired patients was 3.63 ± 0.55 with a p value of 0.000 which was significant. In coagulation parameter, mean score in discharged patients was 1.01 ± 1.21 whereas in expired patients was 2.31 ± 1.51 with a p value of 0.000 (p value <0.05) which was significant. In liver profile, mean score in discharged patients was found to be 0.45 ± 1.05 whereas in patients who died was 1.06 ± 1.19 with a significant p value of 0.006.In CVS, discharged patients had a mean score of 0.89 ± 1.31 and patients who died had a score of 3.69 ± 0.69, the p value came out was significant (0.000 i.e. <0.05). In CNS, discharged patients had a mean score of 1.45 ± 1.42 whereas in patients who died was 3.53 ±

0.67 with a significant p value of 0.000 (<0.05). Lastly, in renal parameter, mean SOFA score in discharged patients was 0.29 ± 0.85and in expired patients was 1.44± 2.20 with a p value of 0.000 (<0.05) which was significant.

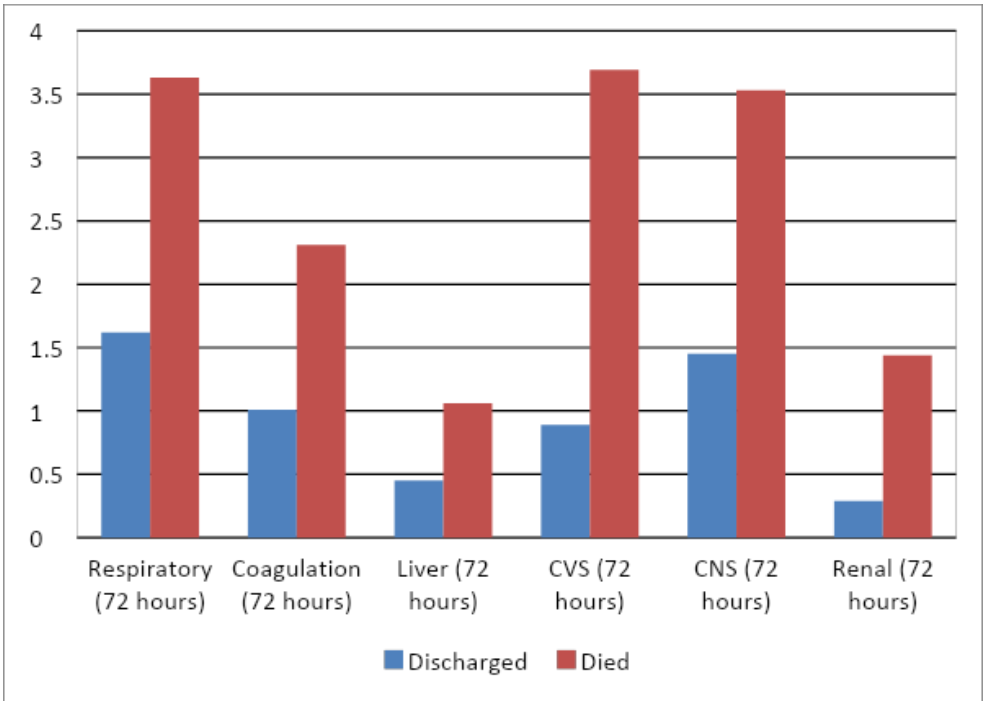


**Figure 78: Effect of SOFA score 72 hours on outcome**

**Table 68: Effect of SOFA score 72 hours with cut-off on final outcome**

| | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Died | | Discharged | | | | |
| SOFA 72 hour | < 10 | 2 | 6% | 90 | 83% | 92 | 63.544 | 0.001 |
| | ≥ 10 | 30 | 94% | 19 | 17% | 49 | | |
| Total | | 32 | 100% | 109 | 100% | 141 | | |

As seen in the ROC curve (explained before), the cut-off of SOFA score at 72 hours of admission in this study was 10. Out of 141 patients (DAMA excluded), 109 patients were discharged and 32 patients died. Among the discharged patients, 90 patients (83%) had a SOFA score <10 and 19 patients (17%) had a SOFA score of ≥10.Among the patients who died, 2 patients (6%) had a SOFA score of <10 whereas 30 patients (94%) had a SOFA score ≥10. The p value came out to be 0.001 (p value <0.05) which was significant.

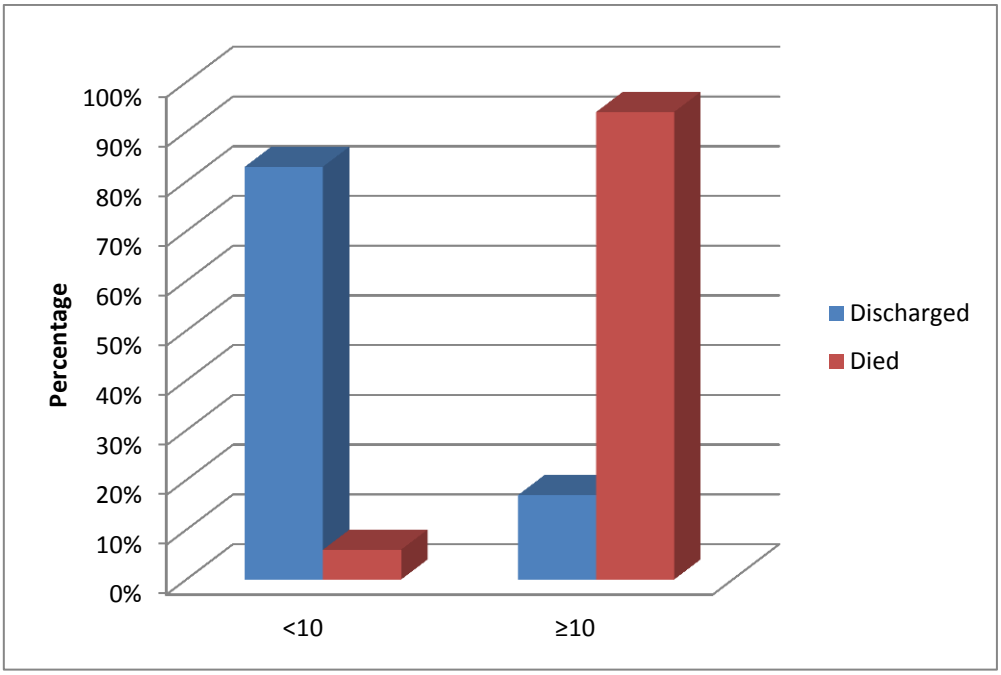


**Figure 79: Effect of SOFA score 72 hours with cut-off on final outcome**

**Table 69: Effect of qSOFA score on outcome**

| | Discharge (n= 109) | | Died (n= 32) | | z | p-value | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|
| | Median | IQR | Median | IQR | | | Lower | Upper |
| RR | 1.00 | 1-1.0 | 1.00 | 1-1.0 | -1.771 | 0.077 | 0.08 | 0.22 |
| GCS | 1.00 | 1-1.0 | 1.00 | 1-1.0 | -0.991 | 0.322 | 0.43 | 0.63 |
| BP | 1.00 | 0-1.0 | 1.00 | 1-1.0 | -3.321 | 0.001 | 0.00 | 0.03 |
| Quick SOFA | 2.00 | 2-3.0 | 3.00 | 3-3.0 | -3.465 | 0.001 | 0.00 | 0.03 |

In our study, effect of quick SOFA score was seen on the outcome of patients. We have taken cut-offs of Respiratory rate and Systolic BP as per the age-adjusted criteria as given in PALS guidelines. Out of 150 patients, 9 patients who went DAMA were excluded. Total qSOFA score range was from 0-3. Median score of total qSOFA score seen in discharged patients was 2.00 and in patients who died was 3.00 with a significant p value of 0.001 (p value <0.05). Individual parameters of qSOFA score was compared in discharged as well as died patients. In respiratory parameters, the median score in discharged patients was found to be 1 and in expired patients was also 1 with a p value of 0.077 which was insignificant. In GCS parameter, median score in discharged patients was 1.00 and in expired patients was also 1.00 with a p value of 0.322 (p value <0.05) which was insignificant. Lastly, in BP parameters, median score in discharged patients was 1.00 and 1.00 in those who died with a significant p value of 0.001 (p value <0.05).

**Table 70: Effect of quick SOFA with cut-offs on outcome**

| | | Outcome | | | | Total | Chi-square value | p-value |
|---|---|---|---|---|---|---|---|---|
| | | Died (n=32) | | Discharged (n=109) | | | | |
| Quick SOFA | < 2.5 | 5 | 8% | 55 | 92% | 60 | 12.279 | 0.001 |
| | ≥ 2.5 | 27 | 33% | 54 | 67% | 81 | | |

Out of the total 141 patients (excluding DAMA) , 60 patients had a quick SOFA score of less than 2.5 out of which 55 patients (92%) were discharged and 5 patients (8%) died. There were 81 patients with a SOFA score of ≥ 2.5 in which 54 patients (67%) were discharged and 27 patients (33%) died. The study of effect of quick SOFA score on outcome had a p-value of 0.001 which is significant.

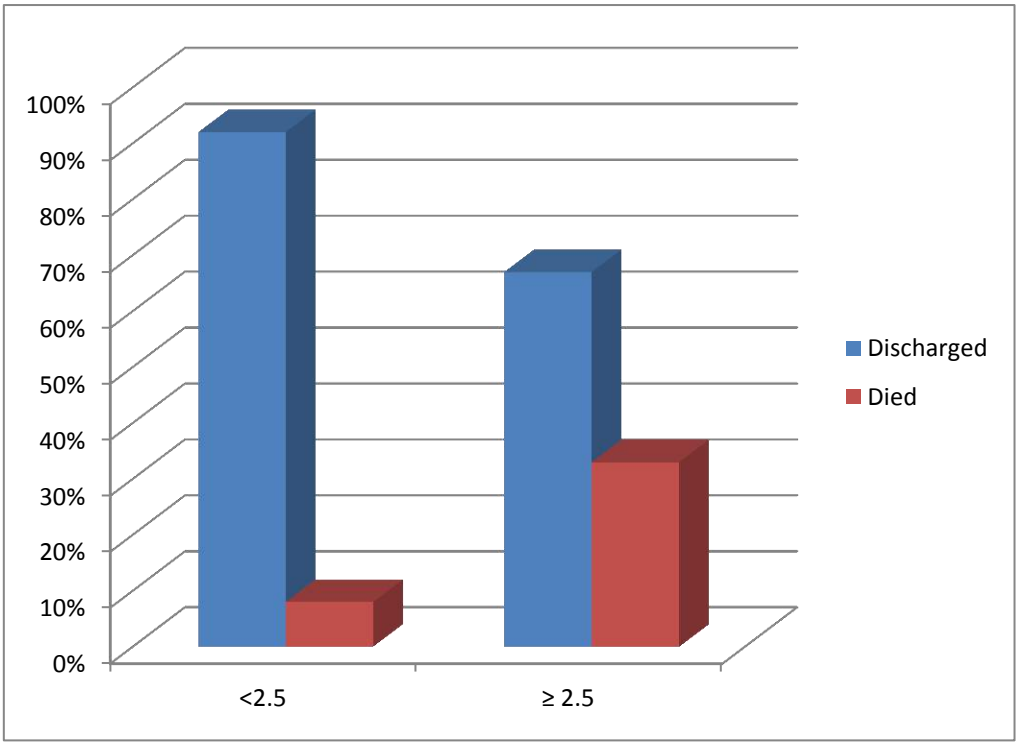


**Figure 80: Effect of quick SOFA with cut-off on outcome**

**Table 71: Comparison of SOFA 24 hours, SOFA 72 Hours, Quick SOFA and PRISM score for outcome prediction**

| Parameter | AUROC |
|---|---|
| SOFA 24 hours | 0.814 |
| SOFA 72 hours | 0.961 |
| Prism Score | 0.803 |
| Quick SOFA | 0.678 |

The area under the ROC curve is highest for SOFA score at 72 hours (0.961) followed by SOFA score at 24 hours (0.814) and then Prism score (0.803). The area under ROC curve was lowest for qSOFA which was 0.678.

**Figure 81: Comparison of AUROC of SOFA 24 hours, SOFA 72 hours and PRISM score**

# DISCUSSION

Sepsis is defined as life threatening organ dysfunction caused by a dysregulated host response to infection. Septic shock is a subset of sepsis in which underlying profound circulatory and cellular abnormalities substantially increase the risk mortality.[9] Sepsis is leading cause of death in adults [36] as well as in children[33,79]. The global burden of sepsis in children has not been assessed despite the incidence of sepsis being highest in neonates and children.[80] Sepsis and septic shock in pediatric age-group remain a major cause of morbidity and mortality worldwide, despite advances in vaccines, antibiotics and intensive care. Sepsis accounts for about 6 million neonatal and childhood deaths a year, accounting for 60-80% of annual child mortality.[1] It is also one of the major contributors towards increased healthcare utilization costs.

Outcome prediction and prognostication plays a pivotal role in clinical and administrative intensive care unit (ICU) management.[27] Outcome prediction not only helps in comparing different ICUs but can also be useful in providing information to relatives of critically ill patients and can guide the clinician in therapeutic decision making. It also helps in resource allocation in a developing, resource poor country. The most common critical care predictive scoring systems are the Pediatric risk of mortality (PRISM) III [49], Pediatric Multiple Organ Dysfunction (PEMOD) scoring system, Pediatric Logistic Organ Dysfunction (PELOD) scoring system [81], Pediatric Index of Mortality 2 (PIM2) [82] in children and Sequential Organ Failure Assessment (SOFA) and APACHE in adults which calculate a prediction on values taken within first 24 hours of ICU stay. Most of these scores are composed of numerous variables making them inconvenient in a setting where evaluation needs to be prompt in rapidly changing medical condition of the patients. The Sequential Organ Failure Assessment (SOFA) score helps to assess organ dysfunction or failure over time and is used to evaluate morbidity. The Sepsis-3 task force recommends that clinical characterization of organ dysfunction for adult patients with sepsis

should be conducted with the SOFA score.[9] The SOFA score is used to quantify the extent of organ involvement in confirmed or suspected infection and is validated to be comparable if not superior to other scoring systems used for predicting patient outcome. SOFA score uses simple variables based on six major organ systems, derived from routinely done clinical parameters and laboratory investigations to calculate a severity score and helps in faster evaluation. The six organ systems are the neurological, cardiovascular, renal, respiratory, hematological and hepatic system for clinical characterization of organ dysfunction. The Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine had created the SOFA score with the intent of creating an objective tool to describe individual and aggregate organ failure [26]. The usefulness of the score has been validated in large cohorts of critically ill patients.[27,26] The SOFA score is more practical for use as it is easy to calculate at the bedside.

Organ dysfunction can be identified as an acute change in total SOFA score ≥2 points consequent to the infection which is associated with an in-hospital mortality greater than 10%.[9] The first evaluation of the pediatric version of SOFA used a retrospective design and data from a single PICU, limiting confidence and generalizability of the final results. As there is paucity of literature on the use of SOFA score in children, so this prospective observational study was conducted to assess the use of SOFA score in predicting outcome of children (aged 1 month to 18 years) with sepsis who were admitted over a duration of 1 year to 10-bedded PICU of tertiary care hospital.

**A) DEMOGRAPHICS AND CLINICAL PROFILE**

There were total 653 admissions to PICU during the study period of 1 year (1 January 2019 to 31 December 2019) out of which 150 patients met the inclusion criteria and were included for the study. Total 503 cases were excluded from the study group as per criteria described in material and methods and results.

- **DEMOGRAPHICS:**

**1. Age group:**

a. In our study, we included patients 1 year to 18 years of age with fever and a clinical evidence of sepsis. There is one study done on utility of SOFA score in prognosticating sick children by Gogia P et al [61] in which children less than 1 year were excluded and the upper limit of age is not mentioned. A study done by Schlapbach, L et al [65] have included all children <18 years. There was another study done to adapt and validate pediatric SOFA score by Matics TJ, Sanchez-Pinto LN [74] which was a retrospective observational cohort study which included children less than 21 years but lower limit is not mentioned.

b. The mean age of presentation in our study population was 81.81 months (S.D.65.23) or 6.82 years (S.D.5.43). The median age of presentation was 72 months (IQR: 12-144) or 6 years (IQR: 1-12).

   Daljit Singh et al. conducted a study in children in the age group of 1 month to 15 years where the mean age was 2.8 ± 3.4 years [83]. Muhammad Rehan Khan et al. conducted a retrospective review of 767 children, 1 month to 14 years age, admitted to the PICU with severe sepsis or septic shock was conducted from January 2007 to December 2008. Sepsis was present in 17.3% (133/767) children admitted to the PICU. The median age of patients was 18 months (IQR 6–93 months) in this study.[84] In study done by Zhang, X. et al [85] in children, the median age is mentioned to be 9 months. Daniela Carla de Souza et al. conducted a multicentric cohort study in PICUs located in five South America countries. The median age of sepsis patients was 11.6 months (IQR 3.2-48.7).[86]

c. In our study, out of total 150 patients, twenty six patients ( 17.3%) were between 1 month and 1 year of age, thirty nine (26%) were between 1 to 5 years of age, thirty eight (25.3%) were between 5 to 10 years of age and forty seven (31.3%) were more than 10 years of age. Majority of children were in the age group of more than 10 years.

   Daljit Singh et al. did a study where a total of 2274 pediatric patients were analysed. Of these, 632, 477 and 1165 were in the age groups of

1 month-1 year, 1-3 years and more than 3 years. Most of the patients in this study were more than 3 years age. [83]

Romi Nangalu et al. conducted a prospective study in same ten bedded PICU where our study was also conducted. A total of 400 patients admitted to PICU aged 1 month 14 years were enrolled in the study over a period of 1 year. The age distribution of patients was in contrast to our study as the maximum number of patients in this study belonged to the age-group of 1-5 years. The number of patients less than 1 year, 1-5 years, 5-10 years and more than 10 years were 104, 131, 80 and 85 respectively.[87] Shrijana et al. conducted a retrospective study done at Patan Hospital in Nepal assessed all patients between 0 and 16 years old admitted to the six-bed PICU from July 2009 to July 2010. In this study, there were 23 (19%) patients who were less than 28 days in age, 29 patients (24%) were aged 28–364 days, 23 patients (19%) were 1–5 years in age, 16 patients (13%) were aged 6–10 years and patients more than 11 years were 29 in number (24%). Data was missing in 2 patients (1.6%). Maximum number of patients in this study belonged to the age-group of 28-364 days and more than 11 years. [88] In contrast to our study, Infants had the highest frequency of sepsis (42%) followed by school age group (27%), pre-school (23.5%) and adolescents (7.5%) group in a study conducted by Muhammad Rehan Khan et al.[84] Watson et al. also revealed in his study that most of the patients with sepsis i.e. 48% were less than 1 year old. [29]

The reason behind the discrepancy in our study and other studies could be a higher mean age in our study. Major causes of sepsis and mortality in younger children are diarrhoea and pneumonia. In our region, majority of the patients receive vaccination including pneumococcal and rotavirus vaccine in the first year which could be the reason for lesser number of patients less than one year of age presenting to PICU in our region.

2. **Gender:**

In our study majority of the patients were males i.e. 90 (60.0%) and 60 (40.0%) were females. Male to female ratio was 1.5:1.

In a study by Daljit Singh et al., the male-female ratio was 1.6:1 which is similar to our study. This study by Daljit Singh et al. was done in the same institution where our study has been conducted. [83] In the study by Romi Nangalu et al. the male to female ratio of 2.78:1.[87] The male to female ratio was 1.6:1 in a study conducted by Muhammad Rehan Khan et al.[84] In studies done bySchlapbach, L.[65] and Zhang, X. et al [85], there was male predominance seen which was similar to our study. Study done in adult population by Shabir and Maqbool in 2017 [89] had a male to female ratio of 1:1.04 which was in contrast to our study. There were two more studies done in adults by Baradari et al [90] in 2015 and Safari S. et al[91] in 2016 in Iran which had 63% and 53.4% males respectively in the studies which is somewhat similar to our study. Male predominance in current study could be explained by the fact that there is inherent gender bias for males in developing countries.

3. **Primary system involvement:**

Out of the total 150 patients, maximum patients- 75 patients (50.0%) presented with respiratory system as the primary abnormality, 31 patients (20.7%) had intra-abdominal infections, 21 patients (14%) had CNS involvement, 10 patients (6.7%) had musculoskeletal involvement, 4 patients (2.7%) had endocrinological abnormality, 4 patients (2.7%) had CVS involvement, 4 patients had renal involvement and 1 patient (0.7%) had rheumatological abnormality.

In another study done by Rady et al [92], respiratory problems were the highest admission diagnoses (40.6%), followed by central nervous system (CNS) (15.1%) and cardiovascular system (CVS) (10.8%) which were somewhat in similarity to our study. This study shows the general trend of diseases which require admissions in PICU. In the study done by Changxue Xiao et al. in children, the respiratory system was the most common organ system in which dysfunction was observed (76.7%) as well as the most frequently infected site (37.6%).[93] Montgomery at al. did a study in adult patients where pulmonary and intra-abdominal infections were the most commonly associated sites of infection identified in patients suffering from acute

lung injury related to sepsis.[94] In a study done by Shabir and Maqbool[89] in adults maximum patients were of sepsis followed by poisoning followed by respiratory system involvement (COPD, Community acquired pneumonia, ARDS) followed by CNS and then cardiac. This can be due to the type of diseases found in different parts of the country as well as difference of diseases in adults versus children.

- **CLINICAL PROFILE:**

**1. Airway and Breathing:**

In our study, out of the total of 150 patients, 141 patients (94.0%) had an open airway with 52 (34.7%) having stable and 89 (59.3%) having unstable airway. Nine (6.0%) had an obstructed airway at admission. At admission, 105 patients (70.0%) had tachypnea, 29 patients (19.3%) had normal respiratory rates, 14 patients (9.3%) had bradypnea while 2 patients (1.3%) presented with apnea. Normal efforts of breathing was seen in 37 patients (24.7%), whereas 106 patients (70.7%) had increased efforts of breathing, 4 patients (2.7%) had acidotic breathing and poor efforts were seen in 3 patients (2.0%). With respect to air entry, 100 patients (66.7%) had normal air entry, 30 patients (20.0%) had differential air entry and 20 patients (13.3%) had poor air entry. On auscultation it was observed, 70 patients (46.7%) had no abnormality, 60 patients had crackles (40.0%), 17 patients (11.3%) had wheeze and 3 patients (2.0%) had stridor.

Ruud G Nijman et al. carried a prospective observational study in febrile children with background of sepsis aged 1 month to 16 years in pediatric emergency department showed that out of the 5,156 febrile patients, 1606 (34%) children had tachypnea at admission.[95] A study by Romi Nangalu et al., which was done in the same institution where our study was conducted, out of the total 400 patients,89 (22.25%) patients had tachypnea.[87]

In our study, a large proportion of patients (70%) had tachypnea at admission as compared to other studies. We have only included the patients with fever and a background of sepsis or septic shock in our

study which might be the reason behind the larger number of patients with tachypnea.

2. **Circulation:**

In our study, out of the total 150 patients, 56 patients (37.3%) presented with normal heart rate at admission, 88 patients (58.7%) had tachycardia, 4 patients (2.7%) had bradycardia and 2 patients (1.3%) presented in arrest. One forty seven patients (98.0%) had sinus rhythm, 1 patient (0.7%) presented with arrhythmia (Paroxysmal supraventricular tachycardia) and 2 patients (1.3%) had asystole at presentation. Out of 150 patients, 5 patients (3.3%) had a brisk CFT (<2 seconds), 107 patients (71.3%) had a CFT of 2-3 seconds, 28 patients (18.7%) had a CFT of 4-5 seconds and 10 patients (6.7%) had a CFT >5 seconds. Central pulses were good volume in 128 patients (85.3%), poor volume in 22 patients (14.7%). Peripheral pulses were found to be good volume in 64 patients (42.7%), poor volume in 86 patients (57.3%). Out of 150 patients, 53 patients (35.3%) had warm peripheries whereas 97 patients (64.7%) had cold peripheries. At admission, 70 patients (46.7%) had hypotension, 2 patients (1.3%) presented with hypertension and 78 patients (52.0 %) were normotensive.

A study done by Daljit Singh et al. included children between 1 month and 15 years of age admitted with the clinical evidence of shock. During the study period, 98 children presented with shock accounting for 4.3% of admissions.[83]

In the study by Romi Nangalu et al. out of the 400 enrolled patients, 91 patients (22.75%) had tachycardia at admission and 14 patients (3.5%) had bradycardia.[87] In the study done by Ruud G Nijman et al. in febrile children with background of sepsis in pediatric emergency department,1907 (39%) children had tachycardia at admission out of the total 5156 febrile children.[95] Soner Sertan Karaet al. did a retrospective study in 150 patients aged ≤18 years with febrile neutropenia and it was found that hypotension, tachycardia, and tachypnea were risk factors for bacteremia.[96]

**3. Laboratory parameters:**

**3.1 Acidosis and outcome:** The mean pH was 7.27 (S.D. 0.15) in the discharged patients, 7.15 (S.D. 0.15) in the patients who died and 7.19 (S.D.0.15) and 7.19 (S.D. 0.15) in the patients who went DAMA. The normal range for pH was taken as 7.35-7.45. In our study, the patients with who presented with acidosis at admission (pH less than 7.35) had poor outcomes and this comparison of pH with outcome was statistically significant with p-value of 0.000**.** In a study by Suetrong et al, lactic acidosis (hyperlactatemia and serum pH < 7.35) in patients with severe sepsis or septic shock was shown to be associated with significant morbidity and mortality.[97]

**3.2 Total serum bilirubin (TSB) and outcome:** Bilirubin (mg/dl) is an individual parameter of SOFA score. A score of 0 was assigned for bilirubin less than 1.2 mg/dl, score of 1 for bilirubin between 1.2-1.9mg/dl, score of 2 for 2.0- 5.9 mg/dl, score of 3 for 6.0- 11.9mg/dl and a score of 4 for bilirubin of more than 12mg/dl. The mean TSB was 2.03 (S.D.6.55) in the discharged patients, 2.34 (S.D. 6.19) in the patients who died and 0.66 (S.D. 0.31) in the patients who went DAMA. This study of relation of TSB with outcome was statistically insignificant with a p-value of 0.807.

A multivariate analysis revealed that serum Bilirubin is significantly associated with increased postoperative morbidity and mortality in patients undergone liver surgery. [98]

Dhawan et al[99] identified a cut-off value of serum bilirubin of 235 µmmol/L in a multivariate analysis . The cut-off was found to have a sensitivity and specificity of 85% and 65%, respectively (AUC, 0.76).

**3.3 Platelet count and outcome:** The normal platelet count was taken as 150- 450 ($10^3$/µL). Platelet count is one of the six parameters of the SOFA score. Score 0 was assigned to patients with platelet count of more than and equal to 150, score 1 for platelet count 100-149, score 2 for 50-99, score 3 for 20-49 and a score of 4 was given to patients with platelet count less than 20. The mean platelet count was 224.01 (S.D. 197.65) in discharged patients, 136.91 (S.D. 129.23) in the patients who died and 255.44 (S.D.195.17) in the patients who went DAMA. In

our study, lower platelet count was associated with higher mortality and this correlation of platelet count with outcome was statistically significant with a p-value of 0.021.

Fortenberryet al., conducted a study in eighty-one children with sepsis-induced thrombocytopenia-associated multiple organ failure. Therapeutic plasma exchange use in thrombocytopenia-associated multiple organ failure was associated with a decrease in organ dysfunction.[100].Naime et al., concluded in a study carried in adults that thrombocytopenia is a hallmark of sepsis and is strongly correlated as a marker of the infection and hence associated with poor outcome.[101]

**3.4 Creatinine and outcome:** The serum creatinine is a parameter of SOFA score. A SOFA score of 0 was given to patients with creatinine less than 1.2mg/dl, score 1 was given to creatinine 1.2- 1.9mg/dl , score 2 was given to patients with creatinine 2.0- 3.4 mg/dl, score 3 for creatinine 3.5- 4.9 md/dl and score 4 for creatinine more than 5 mg/dl. The mean creatinine in discharged patients was 0.77 (S.D.0.97), mean creatinine was 1.55 (S.D.1.66) in the patients who died and 1.19 (S.D.1.02) in the patients who went DAMA. The p-value was 0.001 which is statistically significant. Hence the patients with higher creatinine values had higher risk of mortality.

James Schneideret al., conducted a study in critically ill children where RIFLE score was calculated for each patient based on percent change of serum creatinine from baseline (risk = serum creatinine x1.5; injury = serum creatinine x2; failure = serum creatinine x3). It was concluded that patients with acute kidney injury at the time of admission had a length of stay twice that of those with normal renal function, and those who had any acute kidney injury develop during the pediatric intensive care unit course had a four-fold increase in pediatric intensive care unit length of stay.[102]

**3.5 Lactate and outcome:** We compared lactate with patient outcome. The mean lactate in the discharged patients was 3.49 (S.D.2.27), 5.36 (S.D.3.32) in the patients who died and 3.39 (S.D.2.31) in the patients who went DAMA. This correlation was statistically significant with p-value was 0.000. Hence it was found that in our study, the patients with

higher values of lactate had higher risk of mortality.

Samaraweera et al. conducted a study in 60 PICU patients and concluded that hyperlactatemia on admission is an early predictor of outcome and is associated with a greater mortality risk. [103]

Lawton et al., concluded in a study conducted on children with major trauma that an elevated lactate in a trauma patient is strongly correlated to severity of injury, length of stay and morbidity and mortality.[104] Amodeo et al., conducted a study in critically ill children requiring ECMO and found an association between serum lactate at 24 hours and mortality as the correlation of lactate with outcome (survivors and non-survivors) was statistically significant with a p-value of 0.037.[105]

**3.6 C-reactive protein (CRP) and outcome:** C-reactive protein is an acute inflammatory marker and is commonly used in our centre as a marker of sepsis. The patients who were discharged had a mean CRP of 106.94 (S.D. 106.95), the mean CRP was 162.68 (S.D.128.46) in the patients who expired and 90.61 (S.D.79.04) in the patients who went DAMA. This comparison of CRP with the patient outcome was statistically significant with a p-value of 0.013.

**3.7 Blood glucose:** The Random blood sugar (RBS) done for all patients was compared to the outcome. The mean RBS was 118.5 (S.D.84.48) in discharged patients, 104.59 (S.D.65.85) in the patients who died and 93.11 (S.D.40.98) in the patients who went DAMA. The comparison of RBS with patient outcome was statistically insignificant with a p-value of 0.383.

 **MORBIDITY:**

**a. Ventilation:**

In our study, out of 150 patients, 124 patients (82.7%) required ventilation for respiratory support and 26 patients (17.3%) did not require any form of ventilation. Out of the 124 patients requiring ventilation, 82 patients (66.1%) required invasive ventilation whereas 42 patients (33.9%) required non-invasive form of ventilation (which included BiPAP, CPAP, indigenous CPAP and HFNC).

In the study done by Romi Nangalu et al., out of the total 400 patients,

127 patients (31.75%) required mechanical ventilation.[87] These statistics are very low as compared to our study which might be due to inclusion of patients with sepsis in our study population. Changxue Xiao et al. conducted a prospective, observational, and multicentre study in 8 PICUs in Southwest China in a total of 245 patients who were diagnosed with severe sepsis or septic shock. In this study, mechanical ventilation was required in 78.4% patients which is similar to our study.[93] Contrary to our study, Jennifer et al. conducted a study where among the entire cohort, 32% required mechanical ventilation during the hospitalization.[106] In a study done by Lie, K.C., Lau, C., Van Vinh Chau, N. et al [107] in adults in 2018, only 14% patients were supported with mechanical ventilation. There is no mention of the form of ventilation. This is in contrast to our study. It could be due to the severity of sickness and type of children admitted to our intensive care unit as well as the difference in the disease process and respiratory reserve in adults versus children.

**b. Inotropes requirement:**

In our study, out of 150 patients, 103 patients (68.7%) required inotropes for management of shock whereas 47 patients (31.3%) did not require any inotropic agent.

The study done by Romi Nangalu et al. had 115 patients (28.75%) with requirement of inotropes out of the total 400 patients. The higher need of inotropes in patients in our study might be due to the inclusion of sick patients with evidence of sepsis.[87] In the study conducted by Changxue Xiao et al., vasoactive infusions were required in majority of the patients59.6%which is similar to our study.[93] Contrary to our study, in the study conducted by Jennifer et al., only 31% required blood pressure support with continuous infusion of vasoactive medications during the hospitalization.[106]

In our study, out of the 103 patients who required Inotropic support, 29 patients required 1 inotrope, 38 patients required 2 inotropes, 13 patients required 3 inotropes and 23 patients required more than 3 inotropes. In the study by Muhammad Rehan Khan et al., 44 patients (33%) required 1 inotrope and more than 1 inotropes were required in

49 patients (37%).[84]

**c. Duration of stay :**

In our study, the mean duration of PICU stay was 6.81 days (S.D. 6.871) and the median duration of PICU stay was 5 days (IQR 3 – 7.25 days).

Total 150 patients were included in the study. Twenty eight patients (18.7%) had a stay of less than 3 days and 85 patients (56.7%) had a stay of 3-7 days in Pediatric ICU. Twenty four patients (16%) had a stay of 7- 14 days and 13 patients (8.7%) had a duration of stay of more than 14 days. Hence most of the patients had a duration of stay of less than 7 days. Similar results are seen in the study done by Romi Nangalu et al. in 400 PICU patients. In this study, 249 patients (62.25%) patients had a less than 7 days of PICU stay, 108 patients (27%) had a 7-14 days of PICU stay and 43 patients (10.75%) had a PICU stay of more than 7 days. Therefore most of the patients had a PICU stay of less than 7 days in this study which is similar to our study.[87]

Maria Punchak et al. conducted a Retrospective, observational study in a tertiary PICU in Mozambique where the median length of PICU stay was 2 days.[108] In the study conducted by Sangita et al., in 126 children 0 to 16 years admitted to the PICU from July 2009 to July 2010 , the mean length of stay in the hospital was 6.2 days (± 5.3) and median 4 (interquartile range, 2.5-9.0).[88]

**d. Outcome :**

During our study period total 653 patients were admitted to PICU out of which 92 patients died and the overall mortality rate of our PICU was 14.1%. The mortality in 503 patients with no evidence of sepsis was 11.9% (60 patients). In our study group, total 150 patients that included patients with sepsis were enrolled, out of which 109 patients (72.7%) were discharged from PICU, 32 patients (21.3%) died and 9 patients (6.0%) went DAMA (discharged against medical advice).

The study conducted by Muhammad Rehan Khan et al. on 133 PICU patients with sepsis and septic shock which showed a mortality rate of 24% as 32 out of 133 patients died.[84] In studies done by Branco et al.

and Sarthi et al., it was concluded that the mortality rate of sepsis in children from PICU of developing countries is higher than 50%.[109,110] In the study conducted by Sangita Basnet et al. in PICU patients in Patan hospital, Nepal, the overall PICU mortality was 26% of total admissions.[88] In the study by Romi Nangalu et al. on 400 PICU patients, 300 patients (75%) were discharged, 42 patients (10.5%) died and 58 patients (14.5%) went DAMA.[87] Raina et al. conducted a PICU study in patients aged 1 month and 18 years in a tertiary care hospital. Of the total 529 patients admitted during the period, 413 (78%) patients were enrolled for study. The study showed an overall mortality seen was 7% (29 cases).[111] The study by Travis et al. out of the total 8711 PICU patients, 8482 survived and 229 died with a overall mortality rate was 2.63 %.[74]

The difference in the mortality rate of the studies can be due to different inclusion criteria for determining the study population. We included patients admitted with fever and a clinical diagnosis of sepsis and mortality is known to be higher in the patients with sepsis and especially septic shock.

**B) SOFA AND QUICK SOFA SCORE :**

The Sequential failure assessment score (SOFA) score is a simple and an objective score that helps in clinical characterization of organ dysfunction based on common clinical and laboratory parameters. It is integrated with six organ systems as the sub-scores, namely Respiratory, Coagulation, Liver, Cardiovascular, Renal and Neurological systems. The sum total of the 6 scores for each organ system gives total SOFA score which can range from 0-24 with 24 indicating a high risk of poor outcome.

**a) SOFA score cut-offs :**

Coordinates plotted on the ROC curve showed the best cut-off in SOFA score at 24 hours at 9.5 with a sensitivity of 0.81 and specificity of 0.68 and 10.5 with sensitivity of 0.81 and specificity of 0.73. So the cut-off taken for SOFA score at 24 hours in our study was taken as 10.Coordinates plotted on the ROC curve showed the best cut-off in SOFA score at 72 hours at 9.5 with a sensitivity of 0.94 and specificity

of 0.80 and 10.5 with sensitivity of 0.88 and specificity of 0.85. So the cut-off taken for SOFA score at 72 hours in our study was 10.

**b) ROC Curve**

In our study, we used the ROC curve to find out a single value for SOFA and quick SOFA scores that would be most appropriate to predict patient outcome. ROC curve helps to select a threshold that best suits our application. ROC Curve is a graphical plot that helps us see the performance of a binary classifier or diagnostic test when the threshold is varied. The idea is to maximize correct classification or detection while minimizing false positives. ROC Curve is also useful when comparing alternative classifiers or diagnostic tests. ROC is a probability curve and Area Under Curve (AUC) represents degree or measure of separability. In other words, AUC is a single metric that can be used to quantify how well two classes are separated by a binary classifier. Accuracy is measured by the area under the ROC curve. The comparison of discrimination power was carried out through area under receiver operating characteristic (ROC) curve. An area of 1 represents a perfect test; an area of 0.5 represents a worthless test. A rough guide for classifying the accuracy of a diagnostic test is the traditional academic point system: 0.90-1 = excellent (A); 0.80-0.90 = good (B); 0.70-0.80 = fair (C); 0.60-0.70 = poor (D); 0.50-0.60 = fail (F) [112]

**c) Area under ROC curve SOFA at 24 and 72 hours :**

In our study, area under ROC curve for SOFA score at 24 hours was 0.814 and for SOFA score at 72 hours was 0.961. As area under ROC curve for SOFA score at 72 hours was >0.9 thus it had excellent discrimination power whereas SOFA score at 24 hours had an AUROC between 0.8-0.9 so it had a good discrimination power. The study done in children by Gogia et al [61] where AUROC for initial SOFA score was 0.691 and for SOFA score at 72 hours was 0.997 determining excellent discrimination power for SOFA score at 72 hours but poor discrimination power for SOFA score at 24 hours. Similarly, in the study done by Schlapbach L et al [65], AUROC for SOFA was 0.829 and for qSOFA was 0.739. Also, in another study done by Zhang et al [85],

AUROC for SOFA scores was 0.790 and qSOFA had the AUROC of 0.639. In line with the findings of the present study, Jones et al.[25] in their study in adults evaluating the accuracy of SOFA score in sepsis patients revealed that area under the curve of SOFA scoring system for predicting in-hospital mortality was 0.75 on admission and 0.84 after 72 hours. They concluded that SOFA scoring system provides valuable prognostic information regarding in-hospital mortality for the medical team. Another study done in adults by Anami et al.[113] showed that when SOFA score is higher, mortality increases. Area under the curve for SOFA score at 72 hours was reported to be 0.82 in this study. As can be seen, there is a high agreement between findings of this study with previous ones.

**d) Age-specific ROC curves :**

We also made separate ROC curves for different age groups in our study. It was found that for age group 1 month-1 year, the cut-offs for SOFA score at 24 hours and 72 hours was 7 and 8 respectively, whereas, for age group 1-5 years the cut-offs were 10 and 11, 5-10 years age group had cut-offs 11 and 12 respectively and for >10 years age, the cut-offs for SOFA score were 10 and 7 at 24 and 72 hours respectively. But for the sake of convenience, in our study, the same cut-offs were taken for all the patients instead of individual age groups as there was not a very significant difference noted between the cut-offs in different age groups.

The study done by Gogia et al [10] also derived SOFA score cut-offs which were 7 at T-0 and 10 at T-72. The difference in the values in these studies could be due to difference in the mean and highest SOFA scores. Another study done by Ferreira et al[27] stated that an initial SOFA score of 9 predicted lesser mortality (<33%) than an initial SOFA score of >11 (95%). But this is only the initial SOFA score cut-off. This finding is somewhat similar to our study (initial SOFA score cut-off being 10).

**e) Mean SOFA score at 24 and 72 hours :**

In our study, SOFA score was calculated first at 24 hours and then at

72 hours of admission as has been done in most of the studies till now. Mean SOFA score at 24 hours was found to be 9.01 ±3.91 and at 72 hours was 8.07 ± 5.79.

We also calculated the mean SOFA scores at 24 and 72 hours separately for discharged and died patients. The mean SOFA score at 24 hours in discharged patients was 7.98 (S.D.3.6). In the patients who died, the mean SOFA score 24 hours was 12.31 (S.D.3.22). The patients who went DAMA had a mean SOFA score 24 hours of 9.67 (3.24).The mean SOFA score at 72 hours in discharged patients was 5.67 (S.D.3.91). In the patients who died, the mean SOFA score 72 hours was 15.41 (S.D.3.53). The patients who went DAMA had a mean SOFA score 72 hours of 10.22 (5.54). This comparison of SOFA score at 24 and 72 hours with the outcome was statistically significant with a p-value of 0.000.

Travis et al. conducted a retrospective observational cohort study in critically ill children aged 21 years or younger. This study was carried in a 20-bed, multidisciplinary, tertiary PICU. In this study, the 8482 survivors had a median SOFA score was 2 (IQR 1-5) and in the 229 non-survivors, the median SOFA score was 13 (IQR 10-16).In this study, the SOFA score correlated well with the outcome and was statistically significant (p-value <.001).[74]

**C) OUTCOME AND CORRELATION WITH SOFA SCORE :**

**I. SOFA SCORE :**

- **Age :**

**a. Age and Outcome :**

Out of the total 150 patients included in the study, 26 patients belonged to the age-group of 1 month – 1 year. Out of these 26 patients, 20 (77%) were discharged, 5 patients (19%) died and 1 patient went DAMA (4%). Thirty nine patients belonged to the age-group of 1 – 10 years, out of which 29 patients (74%) were discharged, 7 died (18%) and 3 patients (8%) went DAMA. In the age-group of 5- 10 years, there were 38 patients out of which 27 patients (71%) were discharged, 9 patients (24%) died and 2 patients (5%) went DAMA. Forty seven patients belonged to the age-group of > 10 years out of which 33

patients (70%) were discharged, 11 patients (23%) died and 3 patients (6%) went DAMA. The study of effect of age on the outcome showed a p-value of 0.985 which is insignificant.

The mean age in the discharged patients was 79.78 months (S.D. 65.39) and the mean age in the patients who died was 88.03 (S.D. 64.57). In our study, the patient age did not correlate with the outcome as the correlation was statistically insignificant (p-value 0.530). Hence, we inferred that patient outcome was an age-independent criteria.

In the study done by Travis et al., the median age was 69 months (IQR 17-156) in the survivors and 43 months (IQR 8-144) in the non-survivors. Therefore, the median age was lower in non-survivors as compared to the survivors and hence the age correlated with the outcome with p-value <.002 which is in contrast to our study.[74]

**b. Age and SOFA score :**

In our study, we also evaluated the relation of SOFA score at 24 hours and 72 hours with outcome in different age groups. It was found that a higher SOFA score at 24 hours and 72 hours was associated with higher mortality in all age groups.

**c. SOFA score comparative analysis in different age groups :**

In this study, we compared the role of SOFA score in predicting outcome in different age-groups. The area under the ROC curve at 24 hours and 72 hours for different age-groups were compared**.** For 1 month-1 year, the AUROC was 0.871 and 0.952 at 24 hours and 72 hours respectively; for 1 year- 5 years, 0.873 and 0.984 at 24 hours and 72 hours respectively; for 5-10 years, 0.835 and 0.996 respectively and for more than 10 years, the AUROC was 0.701 and 0.895 at 24 hours and 72 hours respectively. Hence the discrimination power of the SOFA score at 24 hours and 72 hours to predict the patient outcome was better for age-groups 1-5 years and 5-10 years as compared to patients more than 10 years age.

We are aware of no other study that has demonstrated the effect of SOFA score on age group till date as maximum studies have been done in adults till now.

- **Gender :**

**a. Gender and outcome :**

In our study of 150 patients, 60 patients were females and 90 patients were males. Out of the 60 females in the study population, 42 patients (70%) were discharged, 13 patients (22%) died and 5 patients (8%) went DAMA. In the male study population, out of total 90 patients, 67 patients (74%) were discharged, 19 patients (21%) died and 4 patients (4%) went DAMA. The relation of gender with final outcome shows a p value of 0.603 which is insignificant (>0.05).Therefore the patient outcome was a Gender-independent criteria.

In the study done by Travis et al., out of the 8482 survivors, 4644 patients (54.7%) were males and out of the 229 non-survivors, 127 patients (55.4%) were males. In this study, gender and outcome did not correlate as the data was statistically insignificant with a p-value of 0.90 which in similar to our study.[74]

H Trentzschet al. conducted a study to establish that the female gender is protective against organ failure, sepsis and mortality in patients with traumatic hemmorhage. A total of 7560 males and 2774 females were selected and analysed and it was found that higher rates of multiple organ failure (24.4 vs. 21.3%, Odds ratio [OR] 1.19 (95% confidence interval [95%CI] 1.07-1.33), p=0.001) and sepsis (16.5 vs. 11.3%, OR 1.55 (95%CI 1.35-1.77), p<0.001) were observed in males than females.[114]

**b. Gender and SOFA score :**

In our study, we did a comparison of the SOFA score at 24 hours and 72 hours with patient outcome in separately in males and females. It was seen that a higher SOFA score was associated with higher mortality in both males and females. There is no other study we are aware of to compare this data. To our knowledge, this is the first study evaluating the role of SOFA score on gender.

**c. SOFA score in Males vs. Females :**

We also did a comparative analysis to establish the role of SOFA score in predicting outcome in males and females, it was seen that SOFA score had a AUROC of 0.849 at 24 hours and 0.973 at 72 hours in males and 0.745 at 24 hours and 0.906 at 24 hours in females. Hence

there was no major difference between males and females when classified by SOFA score.

Similar results were seen in a retrospective study was performed by Woude et al. in 600 adult patients in the Academic Medical Centre Amsterdam where there were no major differences in gender, age and comorbidity between patients with sepsis or severe sepsis classified by the SIRS, q-SOFA criteria or MEWS of ≥ 5.[115]

- **MORBIDITY**

**1. Ventilation requirement:**

**a. Ventilation and outcome :**

In our study of the total 150 patients, 124 patients required some mode of ventilation at admission. Out of these 124 patients, 85 patients (69%) were discharged, 32 patients (26%) died and 7 patients (6%) went DAMA. The rest 26 patients who did not require any mode of ventilation at admission out of which 24 patients (92%) were discharged, 2 patients (8%) went DAMA and none died. The relation of need of ventilation at admission and the outcome had a p-value of 0.014 which is significant (<0.05).

In the study by Travis et al., out of the 8482 survivors, 2022 (23.8%) required mechanical and out of the total 229 non-survivors, 193 patients (84%) required mechanical ventilation. This correlation of outcome with need of mechanical ventilation was statistically significant (p-value <.001).[74]

**b. Ventilation and SOFA score :**

Ventilation status of patient is itself one of the six sub-scores of the SOFA score which is assessed as PaO2/ FiO2 or SpO2/ FiO2 ratios. We studied the effect of need for ventilation and the SOFA score at 24 hours and 72 hours. It was found that there is a higher SOFA score was associated with higher mortality and hence there was a significant relation between SOFA scores and requirement of ventilation. A significant p value of 0.001 was found in both the correlation of SOFA score at 24 hours and 72 hours.

**2. Inotropic requirement:**

**a. Inotropes and outcome :**

Out of the total 150 patients, 103 patients required inotropic support. Out of these 103 patients who required inotropes, 64 patients (62%) were discharged, 32 patients (31%) died and 7 patients (7%) went DAMA. Forty seven patients did not require inotropes at admission out of which 45 patients (96%) were discharged, 2 patients (4%) went DAMA and none died. The relation of inotropic requirement at admission and the outcome had a p-value of 0.000 which is significant (<0.05).In the study by Travis et al., out of the 8482 survivors, 461 (5.4%) required inotropic support and out of the total 229 non-survivors, 173 patients (76%) required inotropes. This correlation of outcome with need of inotropes was statistically significant (p-value <.001).[74]

**b. Inotropes and SOFA score :**

We studied the relation of SOFA score at 24 hours and 72 hours with blood pressure at admission, most of the patients who presented with hypotension had a higher SOFA score 24 hours and 72 hours with a significant p-value of 0.001 in each of the variable.

No other study comparing similar data has been done. Also, inotropic support is part of cardiovascular parameter in SOFA score and this is the reason for higher SOFA scores in patients requiring inotropes. In the cardiovascular parameter of SOFA score, A sub-score of 0 is given in case of no evidence of hypotension, 1 for low MAP (As per age), 2 for requirement of dopamine ≤ 5 mcg/kg/min or Dobutamine (any dose), 3 for requirement of dopamine more than 5 mcg/kg/min or norepinephrine≤ 0.1mcg/kg/min and a sub-score of 4 is assigned if there is requirement of dopamine more than 15 mcg/kg/min or norepinephrine more than 0.1 mcg/kg/min.

**3. Duration of ICU stay:**

**a. Duration of stay and outcome :**

The mean of duration of stay was compared with outcome excluding the patients who went DAMA (9) as in these patients the final outcome was unknown. Mean duration of stay in discharged patients (109) was

7.57 ± 7.32 and in expired patients (32) was 4.50 ± 5.43. Median duration of stay in discharged patients was 5.00 days (3-8) and 3.00 days (2-5.00) in the patients who died. In our study, most of the patients who died had a shorter duration of stay as compared to the ones who survived which is because the sicker patients have a higher risk of poor outcomes. The duration of stay correlated well with the patient outcome with a p-value came of 0.030 which was significant.

In the study by Travis et al. where the median duration of stay in PICU was 1.3 days (IQR : 0.8-2.9) in survivors and 3.1 days (IQR : 1.2-11.2) in the non-survivors. The comparison of duration of PICU stay correlated with the patient outcome with a p-value of less than 0.001.

In this study, the patients who died had a longer duration of stay as compared to the ones who were discharged which is in contrast to our study. The reason behind this could be that our study population included critically ill patients with sepsis and septic shock whereas this study was conducted on a mixed PICU population of medical, surgical, and trauma patients.

**b. Duration of stay and SOFA score :**

The correlation of SOFA score with duration of stay in PICU was done. Morbidity was defined as a prolonged ICU stay (i.e. >7 days). Mean score of total SOFA (24 hours) was 9.06 ± 3.94 in patients who stayed in less than 7 days and 8.68 ± 4.04 in patients who stayed in more than 7 days with an insignificant p value of 0.627. Mean score of total SOFA score (72 hours) was 7.82 ± 6.13 in patients who stayed in less than 7 days and 8.29 ± 4.66 in patients who stayed in more than 7 days with a p value of 0.681 which was not significant. Therefore SOFA score did not correlate with the duration of stay in PICU as there was no statistical significance found in the relation SOFA at 24 hours and SOFA at 72 hours with duration of ICU stay.

In the study done by Schlapbach, L. et al [65], the prognostic accuracy of SOFA score and qSOFA was seen on outcome. Duration of stay of >3 days was considered as a composite outcome. The study suggested that the risk of the secondary outcome (mortality as well as length of stay >3 days) increased significantly in those with a SOFA

score of ≥ 2.Whereas, our results are in concordance with the study done by Ferreira et al [27] in adults with no significant difference found in length of hospital stay. Mahjoubipour et al [116] aimed to use SOFA system in ICU for prediction of mortality as well as length of ICU stay, showed a significant relationship between SOFA score in beginning of admission and length of ICU stay (P=0.07), but no significant relationship was found between SOFA score on the days after admission and length of stay.

- **MORTALITY:**

**a. Outcome :**

We compared the SOFA score at 24 hours and 72 hours with outcome to define the utility of SOFA score for patients' outcome prediction and prognostication.

Francesca Innocenti et al. carried a study in 742 patients diagnosed with sepsis and septic shock, admitted in Emergency Department (ED) between June 2008 and April 2016. Various scores including SOFA, q-SOFA, PIRO, MEWS, Charlson Comorbidity Index, MEDS, and APACHE II were calculated at admission (T0) and SOFA and MEWS were also calculated after 24 hours of stay in emergency department (T1). Primary outcome was 28-day mortality which came out to be 31%.[117]

**b. SOFA score and survival :**

In our study, a comparison was also done between individual total SOFA score at 24 hours and 72 hours with survival. Survival was determined after exclusion of the patients who went DAMA as the outcome could not be assessed and the main reason of discharge being financial constraints. SOFA score can range from 0-24. In our study the minimum and maximum SOFA score at 24 hours was 1 and 18 respectively, whereas, minimum and maximum SOFA score at 72 hours was 0 and 24 respectively. A Kaplan-Meier graph was made which showed that higher the individual score lesser was the survival.

In our study, when SOFA score was applied to patients at 24 hours, patients with SOFA score ranging from 1 to 10, 75-100% patients survived. The patients with SOFA score between 11 to 15, 30 to 100%

patients survived and patients with SOFA score more than 15, only 0 to 50% patients survived. Similarly when SOFA score was applied to patients at 72 hours, all the patients with SOFA score ranging from 0 to 7 survived. Patients with SOFA score ranging from 8 to 15, 50 to 100% patients survived and none of the patients with SOFA score more than 15 at 72 hours survived.

In few studies done in adults, a range of SOFA score has been taken into consideration but not individual scores. In a study done by Ferreira et al [27], individual and highest SOFA scores were compared with mortality. Ranges of SOFA score taken were 0-1, 2-3, 4-5, 6-7, 8-9, 10-11 and >11 in individual scores and 0-1, 2-3, 4-5, 6-7, 7-8, 8-9, 10-11, 12-14 and >14 for highest scores. The data suggests similar outcomes stating higher mortality with higher individual scores.

Many previous investigations have reported higher mortality with higher SOFA scores. In the study done by Schlapbach L et al [65], the performance of SIRS, age-adapted SOFA, quick SOFA and PELOD-2 scores as predictors of outcome in children were compared. It was found that SOFA and PELOD-2 had significantly greater prognostic accuracy for in-hospital mortality which is in line with our results. Various studies done in adults by Maqbool et al [89], Jain A et al [118], Baradari et al [90], Ferreira et al [27], Safari et al [91], Lie et al [107], Anami et al [113] all show similar results.

**c. Mean SOFA score and outcome :**

The mean SOFA score at 24 hours was 7.98 (S.D.3.6) in discharged patients and 12.31 (S.D. 3.22) in the patients who died. The mean SOFA score at 72 hours was 5.67 (S.D. 3.91) in the discharged patients and 15.41 (S.D. 3.53) in the patients who expired. It implies that a higher SOFA score was associated with higher risk of mortality. So, the correlation of SOFA score and outcome was statistically significant (p-value 0.000 at 24 and 72 hours).In the retrospective study by Travis et al., the median SOFA score was 2 (IQR 1-5) in the survivors and 13 (IQR 10-16) This correlation of SOFA score and the outcome was statistically significant (p-value <.001).[74]

Eileen M Bulger et al. conducted a multicenter, retrospective clinical study in 198 adult patients with Necrotising soft-tissue infections. The mean SOFA score on admission was 2.4 ± 3.0, with 49% of the patients having a score ≥2 and 35% a score of ≥3.[119] The study conducted by F Álvarez-Lerma et al. on 139 adult patients admitted to 19 Spanish ICUs had a mean SOFA score of 8.4 (S.D. 4.3). [120]

**d. SOFA score with cut-off and outcome :**

Also, the role of cut-off of SOFA score was seen on final outcome in our study (cut-offs being <10 and ≥10 for SOFA on day 1 and <10 and ≥10 on day 3). We found that there was higher mortality with a higher SOFA score at 24 hours as well as 72 hours with high statistical significance (p value=0.000). These findings are in concordance with study done by Gogia et al [61] where the cut-offs were different (7 at T-0 and 10 at T-72) but the correlation of higher SOFA score with higher mortality was similar.

The study by Eileen M Bulger et al. in adult patients with Necrotising soft-tissue infections revealed that 49% of the patients had a SOFA score ≥2 and 35% a score of ≥3. [119]

**e. Individual parameters of SOFA score and outcome :**

SOFA score is an integrated score composed of organ systems as the six parameters. We found that respiratory, coagulation profile, CVS, CNS and renal sub-scores correlated significantly with the outcome at 24 hours as well as 72 hours. However, in our study, liver parameters showed statistical significance only on day 3 and not on day 1.However, when the total SOFA score was studied, a strong and significant correlation was seen between the scores on day 1 as well as day 3 and the outcome. The total SOFA score represents the cumulative organ dysfunction of the patient. This shows that though the different system scores form an important component of SOFA calculation yet individually they may not be good predictors. Hence, SOFA should be considered in its composite form as a predictive model. In the studies done in children by Gogia et al [61], Schlapbach L et al [65] and Zhang X et al [85], individual SOFA parameters have not been evaluated. We are aware of no other study that has demonstrated

the utility of applying the SOFA score in children. To our knowledge, this is the first study examining the role of individual parameters of SOFA score in children. However, the relationship between organ dysfunction and mortality has been demonstrated in studies done in adults by Vincent *et al*. [27] and Minne et al.[121] Similar results were seen in a study done in adults by Jain A et al [118] in which they found that cardiovascular score on day 1 and 3, respiratory score on day 7, and coagulation profile on day 3 correlated significantly with the outcome.

We could not determine the contribution of individual components of SOFA score due to the limited number of cases and small sample size. In a study done by Moreno et al on a total of 1,449 adult ICU patients, the results demonstrated that the cardiovascular score was associated with the highest relative contribution to outcome, followed by the renal, the neurological, the coagulation and the respiratory scores. No such contribution could be demonstrated for the hepatic score in this study.[122]

## II. QUICK SOFA SCORE (qSOFA)

Early diagnosis and prompt management are crucial for successful outcome in the patients with sepsis. The Third International Consensus Definitions Task Force formulated a simple bedside and an easily reproducible scoring system called Quick SOFA to identify patients with suspected infection who would require escalation of therapy and monitoring. Quick SOFA score is composed of three parameters namely respiratory rates, blood pressure and GCS. We applied quick SOFA score in our study population using adjusted parameters as per PALS guidelines.

The maximum Quick SOFA score is 1 and maximum is 3. In our study, out of the total 150 patients, 21 patients (14.0%) had a quick SOFA score of 1, 43 patients (28.7%) had score of 2 and 86 patients (57.3%) had a score of 3.

### a. Mean Quick SOFA score :

The mean quick SOFA score was 2.34 (S.D. 0.74) in discharged patients, 2.81 (S.D. 0.47) in the patients who died and 2.22 (S.D. 0.97)

in DAMA patients. This comparison of quick SOFA score in relation to the patient outcome was statistically significant with p-value 0.003 (<0.05).

**b. Area under ROC curve for quick SOFA score :**

In our study, area under ROC curve for quick SOFA score was 0.678. As area under ROC curve was between 0.6-0.7, the discrimination power of quick-SOFA score in our study is poor.

In the retrospective study done by Van Nassau et al[123], qSOFA was compared to SIRS and qPELOD-2.In this study, qSOFA turned out to be the best predictor of PICU transfer and/or mortality with an AUROC of 0.72 (95% CI, 0.57-0.86) as compared to AUROC of 0.64 (95% CI, 0.53-0.74), *p* = 0.23] for SIRS and AOROC 0.60 (95% CI, 0.45-0.76), *p* = 0.03) for qPELOD-2.

Seymour et al. [19] reported in adults that presence of any two of the qSOFA criteria predicts in-hospital mortality with an area under the receiver operating characteristics curve (AUROC) of 0.81 which is in contrast to our study. In the meta-analysis done by Maitra et al. which included both ICU and non-ICU patients, the area under the ROC curve for quick SOFA with 95% CI was found to be 0.73 (0.69-0.77).[124]

**c. Quick SOFA score cut-off :**

Coordinates plotted for the ROC for quick SOFA score showed the best cut-off at 2.5 score with sensitivity of 0.84 and specificity of 0.50. So the cut-off taken for Quick SOFA score was 2.5.In the meta-analysis done by Maitra et al. for predicting mortality in patients with suspected infection, quick SOFA ≥2 had a pooled sensitivity (95% CI) of 0.56 (0.47-0.65) and pooled specificity (95% CI) was 0.78(0.71-0.83). ). [124]

**d. Quick SOFA score and outcome:**

In our study, effect of quick SOFA score was seen on outcome. The data comparing total quick SOFA score with mortality was significant statistically (p value=0.001) with total qSOFA score ≥2.5 being the cut-off.

In the study done by Schlapbach L et al [65] in which it was concluded

that qSOFA had a poor performance in identifying patients with organ dysfunction at risk for worse outcomes. The study also stated that qSOFA may not be of sufficient clinical value to be recommended as a screening tool for pediatric age groups within the ICU. In single-centre retrospective study done by Van Nassau et al [123] the prognostic accuracy of the age-adjusted quick Sequential Organ Failure Assessment score (qSOFA) was compared with the performance to SIRS and the quick Pediatric Logistic Organ Dysfunction-2 score (qPELOD-2) in children presenting in the emergency department. It was found that qSOFA is a moderate predictor of PICU transfer and/or mortality in children. Seymour et al.[19] concluded in a study in adult patients that qSOFA had a predictive accuracy equivalent to that of the full SOFA score for in-hospital mortality in non- ICU patients. However, in patients who are in ICU, full SOFA score had better predictive validity than qSOFA [9].

**e. Individual parameters of quick SOFA score and outcome :**

We also compared individual age adjusted parameters of qSOFA score with the outcome. Only the Blood pressure-component showed statistical significance with p-value of 0.001, Respiratory rates and GCS components did not show any statistical significance in our study.

III. **PRISM II SCORE**

The PRISM score was developed and validated in intensive care setting by Pollack et al [23].

**a) Mean PRISM score :**

The mean PRISM II score in our study was 14.05 (S.D.8.401) and the median PRISM score was 13 with IQR 8-18.In the study conducted by Muhammad Rehan Khan et al., the mean PRISM score was 9 (±7.8).[84] In the study by Raina et al., the mean PRISM II was 13.72 (S.D. 6.84).[111]

**b) PRISM score and Outcome :**

We studied the effect of PRISM score on the final outcome (Discharged vs. Died). Mean PRISM score in discharged patients was 12.28 ± 7.89 and in expired patients was 20.13 ± 7.95. Since the PRISM score was higher in the patients who died as compared to the

discharged patients, the comparison of PRISM score and patient outcome is statistically significant with p value of 0.000 (p value <0.05 is significant).

**c) Comparison of PRISM score, SOFA score and Quick SOFA score :**

We compared the PRISM score with SOFA score at 24 hours and 72 hours and quick SOFA score as PRISM score is already a validated score. According to our study, as per the ROC curves, the best AUROC was seen for SOFA 72 hours, which was 0.961followed by 0.814 for SOFA 24 hours followed by 0.803 for Prism Score and then 0.678 for quick SOFA score.

Our observation that increase in PRISM Score is associated with an increase in the mortality was similar to previous workers [40,41]. Area under ROC seen in our study was 0.803 which has a good discrimination power [112]. Our study revealed that SOFA score at 24 hours as well as 72 hours has a better discrimination power than PRISM score whereas quick SOFA has a poor discrimination power to PRISM score. This is in contrast to the study done by Zhang X et al[85] in which they found PELOD-2 and PRISM had better discrimination power than SOFA as well as qSOFA. This could be due to the small sample size of our study and the different age-adjusted criteria used in both the studies. Moreover, the SOFA score taken in our study is at two different time-frames whereas in the study done by Zhang X et al[85], only one SOFA score has been included. Also, we have not compared PELOD-2 score in our study. In another study done by Rady et al[92], they concluded that PRISM III, PIM2, PELOD, PEMOD, SOFA and TISS were significantly correlated to risk of mortality. SOFA score and TISS had better discrimination ability on admission. We are aware of no other study that has demonstrated the comparison of PRISM score with SOFA score and quick SOFA score in children.

To summarize, the results of our study suggest that the SOFA score is fairly accurate in predicting the outcome of patients with fever and a background of sepsis at the time of presentation. SOFA score is a scoring system used for prognostication of patients and it ranges from 0 to 24.We calculated SOFA score at 24 and 72 hours for all patients

and as per the ROC curve, the most appropriate value of SOFA score to predict patient outcome came out to be 10 for both 24 and 72 hours SOFA score. The SOFA scores at 24 hours and 72 hours both have a statistically significant positive relationship to in-hospital mortality. The data suggest that use of the SOFA score is an acceptable method for risk stratification and prognosis of patients with suspected or confirmed sepsis. The SOFA score appears to be a potentially useful tool for either the clinician during bedside assessment or for purposes of clinical research trials of sepsis.

# SUMMARY & CONCLUSION

This study was a prospective observational study of 1 year. Children 1 month to 18 years of age admitted with fever and a background of sepsis at the time of presentation to Pediatric ICU, Dayanand Medical College and Hospital, Ludhiana were included and evaluated within the day of admission using the Sequential Organ Failure Assessment (SOFA) score. SOFA score was calculated at 24 and 72 hours for all patients and data was analysed for the morbidity (in terms of duration of PICU stay, need for inotropes and ventilation etc.) and mortality.

- Majority of children (31.3%) were in the age group of more than 10 years. A higher SOFA score at 24 hours and 72 hours had a statistically significant effect on outcome in all age groups. But the age of the patient did not determine the final outcome as the correlation of age with outcome was not statistically significant.
- Majority of the patients were males (60%) with 40% females. Male to female ratio was 1.5:1. A higher SOFA score had a statistically significant effect on outcome in both males and females. However, the gender of the patient had no effect on the final outcome.
- Most commonly involved system in our study was the respiratory system (50.0%) followed by gastrointestinal system (20.7%). No statistical significance was found between higher SOFA scores with regard to outcome involving a particular system.
- Majority of the patients (82.7%) required ventilation for respiratory support and 17.3% did not require any form of ventilation. Out of the 82 ventilated patients, 66.1% required invasive ventilation whereas 33.9% required non-invasive form of ventilation which included BiPAP, CPAP, indigenous CPAP and HFNC.
- The mean SOFA scores in ventilated patients were 9.61 ± 3.85 at 24 hours and 9.01 ± 5.55 at 72 hours which were higher than mean SOFA scores in non-ventilated patients which were 6.12 ± 2.72 at 24 hours and 3.31 ± 2.74 at 72 hours with a statistically significant correlation (p-value 0.001).
- Majority of patients (68.7%) required inotropes for management of

shock and the rest 31.3% did not require any inotropic agent.

- The mean SOFA score in the patients who required inotropes were 10.75 ± 3.31 at 24 hours and 9.90 ± 5.58 at 72 hours which were higher than the SOFA score for patients who did not require any inotropic support which were 5.19 ± 1.88 at 24 hours and 3.89 ± 2.67 at 72 hours with a statistically significant correlation (p-value 0.001).
- Duration of stay had no statistical significance in relation of various groups (Total SOFA at 24 hours, Total SOFA at 72 hours and Total qSOFA). However, the duration of stay correlated well with the patient outcome as most of the patients who died had a shorter duration of PICU stay.
- Majority of the patients 72.7% were discharged from PICU, 21.3% died and 6.0% were discharged against medical advice.
- The mean SOFA score in discharged patients was 7.98 ± 3.6 at 24 hours and was 5.67 ± 3.91 at 72 hours which was lower as compared to the mean SOFA score in the patients who died which was 12.31 ± 3.22 at 24 hours and 15.41 ± 3.53 at 72 hours with a statistically significant correlation (p-value 0.001).
- The cut-off taken for SOFA score at 24 hours was 10 and SOFA score at 72 hours was also 10.
- Area under ROC curve for SOFA score at 24 hours was 0.814, for SOFA score at 72 hours was 0.961 and quick SOFA score was 0.678. As area under ROC curve for SOFA score at 72 hours was >0.9 thus it had excellent discrimination power whereas SOFA score at 24 hours had an AUROC between 0.8-0.9 so it had a good discrimination power. However, quick SOFA score had a poor discrimination power as its AUROC was between 0.7-0.8.
- A strong and significant correlation was seen between total SOFA scores on day 1 as well as day 3 and the outcome.
- There was higher mortality with a higher SOFA score on day 1 as well as day 3 with high statistical significance (p value=0.000) with cut-offs as well.

- Respiratory score, coagulation profile, cardiovascular score, CNS and renal scores correlated significantly with the outcome at 24 hours and 72 hours. However, liver parameters showed statistical significance with outcome only at 72 hours and not at 24 hours.
- There was statistical significance seen in total quick SOFA score when compared with mortality (p value=0.001) with total qSOFA score ≥2.5 being significant. But individual age-adjusted parameters of qSOFA score did not show any statistical significance.
- SOFA score at 24 hours as well as 72 hours has a better discrimination power than PRISM score whereas quick SOFA has a poorer discrimination power to PRISM score.
- The overall mortality rate of our PICU was 14.1% (92/653). The mortality in 503 patients with no evidence of sepsis was 11.9% (60 patients) and the mortality rate of septic patients was 21.3%.

The SOFA score is fairly accurate in predicting in-hospital mortality in patients with fever at the time of presentation as higher the SOFA score, worse was the patient outcome. In our study, a score of 10 had the best sensitivity and specificity for outcome prediction. SOFA scores at 24 hours and 72 hours both have a statistically significant positive relationship to in-hospital mortality. The SOFA score appears to be a potentially useful tool for either the clinician during bedside assessment or for purposes of clinical research trials of sepsis. It is an acceptable method for risk stratification and prognosis of patients with sepsis and septic shock. It has a significant role in outcome prediction which can be useful in providing information to relatives of critically ill children and potentially for therapeutic decision making and guiding resource allocation especially in developing countries.

This is the first study of SOFA score used to determine the outcome of children with sepsis in the region. In addition, it was also evaluated if various parameters like age, gender, underlying diagnosis, need for ventilation or inotropes etc. can affect the SOFA score.

**Limitations of the study:**

We acknowledge certain limitations of our study.

- The relatively small size of the sample population might have resulted in a less precise estimation of the accuracy of the SOFA score.
- The study was a single centre- based, therefore further multi-centric studies on pediatric SOFA score may enhance the applicability of SOFA score and also enhance the number of patients involved in study.
- We have conducted our study on a subset of critically-ill patients with a clinical diagnosis of sepsis therefore of the results of our study may not be generalisable for children without sepsis.
- We made an adaptation to the individual components of the SOFA and quick SOFA score with age-based cut-offs taken as per PALS guidelines which takes strict parameters into consideration. Whereas, the cut-offs in parameters in adult SOFA and quick SOFA are quite liberal. It is possible that our results would have been different if this adaptation had not been made.
- We have calculated SOFA score at 24-hours and 72-hours but other time points (e.g., 6 or 24 hours) may have yielded different results.

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PRISM score

| Variable | Age Restrictions and Ranges | | Score |
|---|---|---|---|
| Systolic BP (mm Hg) | Infants | Children | |
| | 130–160 | 150–200 | 2 |
| | 55–65 | 65–75 | |
| | >160 | >200 | 6 |
| | 40–54 | 50–64 | |
| | <40 | <50 | 7 |
| Diastolic BP (mm Hg) | all ages | | 6 |
| | >110 | | |
| HR (beat/min) | Infants | Children | |
| | >160 | >150 | 4 |
| | <90 | <80 | |
| Respiratory rate (breath/min) | Infants | Children | |
| | 61–90 | 51–70 | 1 |
| | >90 | >70 | 5 |
| | Apnea | Apnea | |
| $Pao_2/Fio_2$[a] | all ages | | |
| | 200–300 | | 2 |
| | <200 | | 3 |
| $PaCO_2$[b] (torr) | all ages | | |
| | 51–65 | | 1 |
| | >65 | | 5 |
| Glasgow Coma Score[c] | all ages | | |
| | <8 | | 6 |
| Pupillary reactions | all ages | | |
| | unequal or dilated | | 4 |
| | fixed and dilated | | 10 |
| PT/PTT | all ages | | |
| | 1.5 × control | | 2 |
| Total bilirubin (mg/dl) | ≥1 mo | | |
| | >3.5 | | 6 |
| Potassium (mEq/L) | all ages | | |
| | 3.0–3.5 | | 1 |
| | 6.5–7.5 | | |
| | <3.0 | | 5 |
| | >7.5 | | |
| Calcium (mg/dl) | all ages | | |
| | 7.0–8.0 | | 2 |
| | 12.0–15.0 | | |
| | <7.0 | | 6 |
| | >15.0 | | |
| Glucose (mg/dl) | all ages | | |
| | 40–60 | | 4 |
| | 250–400 | | |
| | <40 | | 8 |
| | >400 | | |
| Bicarbonate[d] (mEq/L) | all ages | | |
| | <16 | | 3 |
| | >32 | | |

# KEY TO MASTER CHART

ARDS – Acute respiratory distress syndrome

CPR – Cardiopulmonary resuscitation

ADEM – Acute disseminated encephalomyelitis

PDA – Patent ductus arteriosus

DM – Diabetes mellitus

VSD – Ventricular septal defect

ASD – Atrial septal defect

DIC – Disseminated intravascular coagulation

AKI – Acute kidney injury

MRSA – Methicillin- resistant Staphylococcus aureus

K/c/o – Known case of

A/h/o – Alleged history of

| S. No. | Initial Name | DOA | Age (Mths) | Sex | MDR No. | Main Diagnosis | Weight Actual | Weight Expected | Height Actual | Height Expected | BMI Actual | BMI Expected | Airway | RR | RR Interpretation | Efforts | A/E | Auscultation | SPO2 | HR | HR Interpretation | Rhythm | CFT | SBP | DBP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MK | 01-01-2019 | 36 | F | 646718 | Community Aquired pneumonia with respiratory failure with shock | 14 | 13.9 | 101 | 96.1 | 49 | 49.5 | Open & Unstable | 60 | Tachypnea | Increased | Differential | Crackles | 39 | 182 | Tachycardia | Sinus | 3 | 62 | 46 |
| 2 | K | 07-01-2019 | 168 | M | 649876 | Right Knee septic arthritis with staphylococcal septicemia with septic shock with respiratory failure with ARDS | 50 | 46.4 | 166 | 154.7 | 19.5 | 19.4 | Open & Unstable | 42 | Tachypnea | Increased | Poor | None | 50 | 128 | Tachycardia | Sinus | 4 | 82 | 46 |
| 3 | GS | 05-01-2019 | 60 | M | 649058 | K/c/o cerebral palsy with H1N1 Pneumonia with respiratory failure with sepsis with septic shock | 10 | 16.4 | 94 | 111.9 | 12.03 | 14.8 | Open & Unstable | 46 | Tachypnea | Increased | Differential | Crackles | 89 | 170 | Tachycardia | Sinus | 2 | 108 | 58 |
| 4 | V | 04-01-2019 | 48 | M | 404932 | Pulmonary Tuberculosis with respiratory failure with Sepsis with Shock | 13 | 16.3 | 97 | 103.3 | 50 | 50.2 | Open & Unstable | 44 | Tachypnea | Increased | Normal | None | 93 | 130 | Tachycardia | Sinus | 2 | 108 | 70 |
| 5 | P | 21-12-2019 | 108 | F | 641144 | Acute pancreatitis with respiratory distress with shock with acute kidney injury with obesity | 56 | 27.2 | 142 | 131.4 | 27.8 | 15.8 | Open & Stable | 40 | Tachypnea | Increased | Normal | None | 94 | 140 | Tachycardia | Sinus | 4 | 92 | 48 |
| 6 | AB | 12-01-2019 | 120 | F | 652352 | Left lobar pneumonia with respiratory distress | 32 | 32 | 142 | 140 | 16.3 | 16.5 | Open & Unstable | 47 | Tachypnea | Increased | Differential | Crackles | 93 | 120 | Tachycardia | Sinus | 2 | 124 | 66 |
| 7 | HK | 13-01-2019 | 3 | F | 652957 | Acute bronchopneumonia with respiratory distress with hypothyroidism | 4.5 | 6.4 | 61 | 61.4 | 38 | 40.5 | Open & Unstable | 80 | Tachypnea | Increased | Normal | Wheeze | 75 | 182 | Normal | Sinus | 2 | 86 | 48 |
| 8 | PG | 14-01-2019 | 144 | M | 653092 | H1N1 pneumonia with meningoencephalitis with acute liver failure with respiratory failure with Acute Kidney Injury with coagulopathy with dyselectrolytemia with severe metabolic acidosis with shock | 49 | 39 | 152 | 148.4 | 20.4 | 17.7 | Open & Stable | 41 | Tachypnea | Increased | Normal | Crackles | 95 | 138 | Tachycardia | Sinus | 2 | 76 | 48 |
| 9 | SS | 18-01-2019 | 48 | M | 655527 | H1N1 Pneumonia with Respiratory failure with ARDS | 16 | 16.8 | 102 | 105 | 50 | 49.5 | Open & Unstable | 44 | Tachypnea | Increased | Poor | Crackles | 96 | 162 | Tachycardia | Sinus | 2 | 102 | 58 |
| 10 | PD | 16-01-2019 | 132 | F | 654332 | Right knee Osteomyelitis with Sepsis with Respiratory failure | 25 | 32 | 138 | 135 | 14.7 | 17 | Open & Stable | 44 | Tachypnea | Increased | Normal | None | 83 | 140 | Tachycardia | Sinus | 2 | 114 | 62 |
| 11 | V | 19-01-2019 | 36 | M | 656674 | Acute Membranous Tonsillitis ? Diptheria with Sepsis with Septic Shock with Respiratory distress | 10 | 13.9 | 80 | 95.1 | 46 | 48.5 | Open and Stable | 52 | Tachypnea | Increased | Normal | None | 91 | 138 | Normal | Sinus | 3 | 64 | 32 |
| 12 | G | 19-01-2019 | 24 | F | 656730 | Reye's like Illness with Acute Liver Failure with Encephalopathy with Shock with Respiratory Failure with Myocarditis with Coagulopathy with Pulmonary hemorrhage with Gastrointestinal Bleed | 15 | 12 | 85 | 86 | 48 | 48 | Open and unstable | 46 | Tachypnea | Increased | Normal | None | 82 | 122 | Normal | Sinus | 4 | 56 | 32 |
| 13 | K | 21-01-2019 | 36 | M | 657567 | Acute Bronchopneumonia with Respiratory Distress | 13 | 13.9 | 49 | 48.5 | 101 | 95.1 | Open & Unstable | 49 | Tachypnea | Increased | Normal | Crackles | 90 | 134 | Normal | Sinus | 2 | 102 | 58 |
| 14 | H | 23-01-2019 | 12 | M | 658127 | H1N1 Pneumonia with Right Pneumothorax with Percutaneous Chest drain in situ with Respiratory Failure with Shock with Post-CPR Survivor | 12 | 12 | 79 | 80 | 45 | 45 | Obstructed | 0 | Apnea | None | Poor | None | 0 | 0 | Arrest | Asystole | >5 | 0 | 0 |
| 15 | M | 22-01-2019 | 12 | F | 658034 | Left empyema with respiratory distress with chest drain in situ | 9 | 10.5 | 79 | 80.2 | 47 | 47 | Open & Unstable | 48 | Normal | Increased | Differential | Crackles | 80 | 150 | Normal | Sinus | 2 | 98 | 56 |
| 16 | AS | 23-01-2019 | 144 | M | 658638 | Viral meningoencephalitis with respiratory failure | 35 | 39 | 152 | 148.4 | 15.15 | 17.17 | Open & Unstable | 32 | Tachypnea | Increased | Normal | None | 99 | 158 | Tachycardia | Sinus | 2 | 110 | 60 |
| 17 | I | 25-01-2019 | 24 | F | 659932 | Viral meningoencephalitis with bronchopneumonia with respiratory failure with shock | 10 | 12 | 83 | 80 | 48 | 48 | Open & Unstable | 48 | Tachypnea | Increased | Poor | Crackles | 86 | 169 | Tachycardia | Sinus | 3 | 66 | 38 |
| 18 | G | 26-01-2019 | 192 | F | 660105 | Community acquired pneumonia with ARDS with respiratory failure with shock | 44 | 42 | 156 | 160 | 19.5 | 20.5 | Open & Unstable | 56 | Tachypnea | Increased | Poor | Wheeze | 50 | 140 | Tachycardia | Sinus | 3 | 86 | 46 |
| 19 | NG | 27-01-2019 | 180 | M | 660168 | ADEM with respiratory failure with Aspiration with Cardiopulmonary arrest | 35 | 53.1 | 152 | 14.5 | 15.15 | 19.3 | Obstructed | 0 | Apnea | None | Poor | None | 0 | 0 | Arrest | Asystole | 5 | 0 | 0 |
| 20 | SK | 28-01-2019 | 12 | F | 265717 | H1N1 Pneumonia with septic shock with respiratory distress | 10 | 11 | 83 | 80 | 48 | 45 | Open & Stable | 54 | Normal | Increased | Normal | Crackles | 85 | 203 | Tachycardia | Sinus | 5 | 76 | 44 |
| 21 | D | 31-01-2019 | 1 | M | 662613 | H1N1 pneumonia with Respiratory failure with penumonthorax with pneumomediastinum with shock with Post CPR survivor | 4 | 4.5 | 54 | 54.7 | 37 | 37.3 | Open and Stable | On Bains | Bradypnea | NA | Poor | None | 12 | 96 | Bradycardia | Sinus | >5 | 52 | 36 |
| 22 | JS | 02-02-2019 | 12 | M | 664352 | Sepsis with Acute Diarrhoeal Disease with Hypotensive shock with Respiratory Failure | 10 | 9 | 78 | 75 | 48 | 47 | Open & Unstable | 94 | Tachypnea | Increased | Normal | Crackles | 82 | 220 | Tachycardia | Sinus | 5 | 52 | 36 |
| 23 | IS | 31-01-2019 | 3 | M | 663114 | K/c/o PDA with Bronchopneumonia with respiratory distress | 5.14 | 6.4 | 56 | 61.4 | 39 | 40.5 | Open & Unstable | 100 | Tachypnea | Increased | Poor | Wheeze | 70 | 194 | Tachycardia | Sinus | 2 | 102 | 58 |
| 24 | RY | 30-01-2019 | 180 | F | 662426 | Complicated enteric fever with peritonitis with Post-operative Laprotomy with respiratory failure with catecholamine resistant septic shock with coagulopathy with Pancytopenia | 37 | 44 | 157 | 160 | 16.4 | 20.5 | Open & Unstable | 42 | Tachypnea | Increased | Normal | Wheeze | 92 | 153 | Tachycardia | Sinus | 3 | 86 | 54 |
| 25 | JJ | 30-01-2019 | 24 | M | 407956 | Global Developmental Delay with Acute Bronchopneumonia with Respiratory Distress | 8.2 | 12.2 | 64 | 87.8 | 41 | 48.3 | Open & Unstable | 55 | Tachypnea | Increased | Normal | Wheeze | 82 | 158 | Tachycardia | Sinus | 2 | 86 | 54 |
| 26 | D | 06-02-2019 | 96 | M | 436772 | K/c/o Extrahepatic Biliary Atresia Post-Kasai with acute bronchopneumonia with respiratory failure with coagulopathy | 23 | 30 | 123 | 130 | 15.9 | 16 | Open & Unstable | 36 | Tachypnea | Increased | Differential | Crackles | 85 | 121 | Normal | Sinus | 2 | 124 | 76 |
| 27 | MK | 05-02-2019 | 2 | M | 666133 | Acute bronchopneumonia with respiratory distress with myocarditis | 3 | 5.6 | 57 | 58.4 | 38 | 39.1 | Open & Stable | 78 | Tachypnea | Increased | Normal | Crackles | 86 | 180 | Normal | Sinus | 2 | 108 | 66 |
| 28 | NS | 04-02-2019 | 72 | M | 665205 | ADEM with viral meningoencephalitis | 28 | 18.7 | 128 | 114.8 | 17.07 | 14.9 | Open and stable | 22 | Normal | Normal | Normal | None | 98 | 110 | Normal | Sinus | 2 | 112 | 68 |
| 29 | G | 09-02-2019 | 120 | F | 668597 | First onset DM type 1 with severe Diabetic Ketoacidosis with respiratory failure with acute kidney injury with uremic and hypertensive encephalopathy | 17 | 31 | 123 | 137.4 | 11.34 | 16.5 | Open & Unstable | 36 | Tachypnea | Normal | Normal | None | 90 | 158 | Tachycardia | Sinus | 2 | 126 | 66 |
| 30 | VK | 15-02-2019 | 132 | M | 668671 | Bilateral nephrourolithiasis with obstructive uropathy with uremic encephalopathy with Respiratory failure with Bilateral Percutaneous nephrostomy Post-hemodialysis | 30 | 34.7 | 136 | 142.7 | 16.3 | 17 | Open & Stable | 24 | Normal | Normal | Normal | None | 98 | 80 | Normal | Sinus | 2 | 120 | 82 |
| 31 | JS | 20-02-2019 | 60 | M | 675062 | Acute viral hepatitis A with hepatic encephalopahty stage I with coagulopathy | 15 | 18 | 106 | 100 | 48 | 48 | Open & Stable | 26 | Normal | Normal | Normal | None | 98 | 98 | Normal | Sinus | 2 | 106 | 68 |
| 32 | S | 20-02-2019 | 12 | F | 675083 | Complicated Typhoid fever with Sepsis with shock with respiratory failure with encephalopathy with coagulopathy | 9 | 9.6 | 69 | 75.7 | 48 | 46.1 | Open & Unstable | 58 | Tachypnea | Increased | Normal | None | 70 | 156 | Normal | Sinus | 4 | 56 | 28 |
| 33 | S | 26-02-2019 | 24 | M | 678007 | Sepsis with acute bronchopneumonia with myocarditis with cardiogenic shock with catecholamine-resistant shock with central venous thrombosis with respiratory failure | 10 | 12 | 84 | 83 | 57 | 48 | Open & Unstable | 62 | Tachypnea | Increased | Differential | Crackles | 80 | 130 | Normal | Sinus | 4 | 88 | 46 |
| 34 | P | 25-02-2019 | 12 | M | 678046 | Sepsis with Acute Diarrhoeal Disease with Hypotensive shock with Respiraory Failure | 7 | 9.6 | 73 | 75.7 | 46 | 46.1 | Open & Unstable | 40 | Normal | Increased | Differential | Wheeze | 98 | 184 | Tachycardia | Sinus | 3 | 56 | 32 |
| 35 | GT | 29-03-2019 | 120 | M | 698745 | K/c/o cerebral palsy with hepatitis with stage II hepatic encephalopathy with coagulopathy | 13 | 39 | 114 | 137.2 | 10 | 16.4 | Open & Stable | 32 | Tachypnea | Increased | Normal | None | 81 | 132 | Tachycardia | Sinus | 2 | 108 | 64 |
| 36 | C | 03-07-2019 | 144 | M | 677788 | Systemic Lupus Erythematosis with Sepsis with Septic Shock with Respiratory Distress with Acute Kidney Injury | 50 | 30 | 152 | 148 | 22.2 | 17.7 | Open and Unstable | 32 | Tachypnea | Increased | Normal | Normal | 92 | 112 | Normal | Sinus | 3 | 86 | 46 |
| 37 | H | 26-02-2019 | 1 | F | 675709 | Sepsis with Urinary Tract Infection with Blood Culture positive for Escherichia coli with Bilateral Hydropneumothorax | 3.8 | 4.2 | 50 | 53.7 | 36 | 36.5 | Open & Stable | 80 | Tachypnea | Increased | Normal | None | 91 | 170 | Normal | Sinus | 2 | 102 | 68 |
| 38 | J | 03-01-2019 | 144 | M | 680724 | H1N1 Pneumonia with Respiratory failure with ARDS with catecholamines resistant shock with Acute Kidney Injury with myocarditis with Bilateral pneumothorax | 10 | 10.9 | 78 | 82.3 | 48 | 47.4 | Open & Unstable | 52 | Tachypnea | Increased | Poor | Crackles | 86 | 158 | Tachycardia | Sinus | 2 | 86 | 58 |
| 39 | D | 25-02-2019 | 36 | F | 678136 | H1N1 Pneumonia with Respiratory failure with ARDS | 12.5 | 13.9 | 93 | 95.1 | 46 | 48.5 | Open and Unstable | 78 | Tachypnea | Increased | Differential | Crackles | 68 | 134 | Normal | Sinus | 3 | 88 | 64 |
| 40 | A | 19-03-2019 | 12 | F | 692180 | Acute bronchopneumonia with Respiratory failure with sepsis with septic shock with underlying multi trigger wheeze | 8 | 8.9 | 77 | 74 | 45 | 44.9 | Open & Unstable | 60 | Tachypnea | Increased | Differential | Wheeze | 94 | 140 | Normal | Sinus | 2 | 68 | 36 |
| 41 | RS | 20-03-2019 | 8 | M | 692592 | K/c/o Congenital heart disease (VSD) with Acute Diarrhoeal disease with Some Dehydration with Failure to thrive | 4.6 | 8.6 | 65 | 70.6 | 40 | 44.5 | Open and Unstable | 52 | Tachypnea | Increased | Normal | None | 100 | 118 | Normal | Sinus | 2 | 52 | 24 |
| 42 | AS | 23-03-2019 | 24 | M | 694584 | Acute exacerbation of Multi-trigger wheeze with Acute bronchopneumonia with respiratory distress | 10.5 | 11.5 | 87 | 86.4 | 46.5 | 47.2 | Open & Stable | 82 | Tachypnea | Increased | Normal | Crackles | 97 | 162 | Normal | Sinus | 2 | 108 | 64 |
| 43 | T | 20-03-2019 | 24 | F | 692960 | Complicated enteric fever with anicteric hepatitis with stage I hepatic encephalopathy | 14.6 | 11.5 | 92 | 86.4 | 46 | 47 | Open & Stable | 36 | Normal | Normal | Normal | None | 92 | 142 | Normal | Sinus | 3 | 96 | 48 |
| 44 | SK | 16-03-2019 | 3 | M | 689672 | Sepsis with Acute Bronchopneumonia with Respiratory Distress | 5.5 | 5.8 | 60 | 59.8 | 39 | 39.5 | Open & Stable | 88 | Tachypnea | Increased | Differential | Crackles | 99 | 186 | Normal | Sinus | 2 | 112 | 86 |
| 45 | R | 25-03-2019 | 168 | F | 695674 | Acute viral hepatitis E with hepatic failure with coagulopathy with anemia with thrombocytopenia with hepatic encephalopathy stage I | 72 | 46.4 | 154.5 | 154.7 | 31 | 19.4 | Open & Stable | 22 | Normal | Normal | Normal | None | 99 | 86 | Normal | Sinus | 2 | 106 | 68 |
| 46 | A | 24-03-2019 | 4 | F | 694841 | Sepsis with Acute Diarrheal disease with Severe dehydration with Shock with Respiratory failure | 3.5 | 6.4 | 54 | 62 | 37.5 | 40.6 | Open & Unstable | On Bains | Bradypnea | NA | Differential | None | 100 | 96 | Bradycardia | Sinus | 2 | 88 | 46 |
| 47 | J | 27-03-2019 | 144 | M | 697047 | Thyroiditis with Thyrotoxic storm with Bacterial Tracheitis with Metabolic Encephalopathy with Respiratory failure | 31 | 39 | 147 | 148.4 | 14.3 | 17.8 | Open & Stable | 18 | Normal | Good | Good | Stridor | 92 | 220 | Tachycardia | Sinus | 2 | 142 | 90 |
| 48 | S | 29-03-2019 | 18 | M | 698785 | Chronic Liver failure with Portal hypertension with variceal and upper Gastrointestinal bleed | 10 | 10.9 | 78 | 82.3 | 46 | 47 | Open & Stable | 36 | Normal | Normal | Normal | None | 97 | 142 | Normal | Sinus | 2 | 108 | 48 |

| S. No. | Initial Name | BP Interpretation | CP | PP | Skin Temp. | E | V | M | Pupil Size | Reaction | Exposure Temp | Exposure Color | Primary System Involved | Oxygen | Ventilation | Invasive/ non Invasive | Reason for intubation | NIV | Inotropes Yes/No | Inotropes_Type | Central line | Fluid Bolus requirement Yes/No | Fluid Bolus requirement No. | Fluid Bolus requirement Dose | Nature of fluid | Total fluid balance_1st 24 hrs | Total fluid balance_2nd day | pH | PO2 | PCO2 | FiO2 | HCO3 | BE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MK | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101.8 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine | Y | Y | 2 | 10 | NS | 16.7 | -29.1 | 7.3 | 66 | 36 | 80 | 18.5 | -8.7 |
| 2 | K | Hypotension | Good | Poor | Cool | 2 | 1 | 4 | 3 | RL | 102.3 | Pallor | Musculoskeletal | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine , Norepinephrine | Y | Y | 3 | 20 | NS | 14.18 | -5.6 | 7.11 | 58 | 49 | 100 | 14 | -13.9 |
| 3 | GS | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 100 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 1 | 10 | NS | 2.6 | 30.5 | 7.35 | 20 | 32 | 60 | 18.1 | -7.4 |
| 4 | V | Normal | Good | Good | Warm | 4 | 5 | 6 | 2 | RL | 100.5 | Pallor | Respiratory | Y | Y | Non invasive | Pulmonary | Y | Y | Dopamine | N | N | 0 | NA | NA | 24.6 | 12.9 | 7.48 | 46 | 35 | 40 | 26.8 | 2.6 |
| 5 | P | Normal | Good | Poor | Cool | 3 | 4 | 5 | 2 | RL | 101.2 | Pallor | GIT | Y | Y | Non invasive | Pulmonary | Y | Y | Dopamine, Norepinephrine | Y | Y | 2 | 20 | NS | 26.55 | 22.37 | 7.27 | 55 | 33 | 100 | 16.3 | -11.7 |
| 6 | AB | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 103.4 | Pallor | Respiratory | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | -0.31 | -2.34 | 7.46 | 58 | 33 | 60 | 24.9 | -0.3 |
| 7 | HK | Normal | Good | Good | Warm | 4 | 3 | 4 | 4 | RL | 101 | Normal | Respiratory | Y | Y | Non invasive | Pulmonary | Y | N | NA | N | N | 0 | NA | NA | -10 | 2.85 | 7.45 | 59 | 32 | 60 | 23.6 | -1.8 |
| 8 | PG | Hypotension | Good | Good | Warm | 3 | 4 | 5 | 4 | RL | 103.1 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 0 | NA | NA | 8.56 | 28.86 | 7.25 | 38 | 33 | 65 | 14.5 | -12.7 |
| 9 | SS | Normal | Good | Good | Warm | 4 | 3 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 1 | 20 | NS | 17.8 | 13.6 | 7.27 | 63 | 41 | 45 | 18.8 | -7.6 |
| 10 | PD | Normal | Good | Good | Warm | 4 | 5 | 5 | 4 | RL | 100.8 | Pallor | Musculoskeletal | Y | Y | Invasive | Pulmonary | Y | N | NA | N | Y | 0 | NA | NA | 0.4 | 13.8 | 7.53 | 29 | 39 | 60 | 31.5 | 9.9 |
| 11 | V | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Norepinephrne | Y | Y | 2 | 10 | NS | 9.4 | 2.3 | 7.25 | 65 | 42 | 80 | 18.8 | -9.4 |
| 12 | G | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 2 | RL | 103.7 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 12.6 | 13.3 | 7.09 | 332 | 58 | 100 | 15.6 | -12.2 |
| 13 | K | Normal | Good | Good | Warm | 4 | 4 | 5 | 3 | RL | 101 | Pallor | Respiratory | N | Y | Non invasive | NA | Y | N | NA | N | N | 0 | NA | NA | 4.6 | 17.6 | 7.29 | 80 | 52 | 50 | 28.1 | -6.3 |
| 14 | H | Hypotension | Poor | Poor | Cool | 1 | 1 | 1 | 4 | Dilated | 96.5 | Ashen grey | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 8.9 | 32.2 | 6.8 | 24 | 72 | 100 | 5.6 | -25.7 |
| 15 | M | Normal | Good | Good | Warm | 4 | 5 | 6 | 3 | RL | 100.3 | Pallor | Respiratory | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 8.2 | 6.1 | 7.38 | 58 | 33 | 40 | 20.9 | -5.6 |
| 16 | AS | Normal | Good | Good | Warm | 2 | 1 | 3 | 3 | RL | 101.4 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | Y | Epinephrine | Y | Y | 0 | NA | NA | 6.4 | -23.14 | 7.41 | 36 | 36 | 21 | 23.4 | -108 |
| 17 | I | Hypotension | Good | Poor | Cool | 1 | 1 | 4 | 2 | RL | 101 | Pallor | CNS | Y | Y | Invasive | Pulmonary | N | Y | Norepinephrine | Y | Y | 1 | 20 | NS | 13.1 | 5.6 | 7.17 | 252 | 67 | 50 | 21.7 | -4.1 |
| 18 | G | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 4 | RL | 101 | Normal | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Norepinephrine | Y | N | 2 | 10 | NS | 10.45 | -30 | 7.45 | 107 | 32 | 100 | 22.2 | -1.5 |
| 19 | NG | Hypotension | Poor | Poor | Cool | 1 | 1 | 1 | 3 | RL | 95 | Ashen grey | CNS | Y | Y | Invasive | Extrapulmonary | N | N | Epinephrine | Y | Y | 1 | 20 | NS | 1.94 | 26.9 | 7.1 | 40 | 97 | 40 | 22.2 | 0.4 |
| 20 | SK | Normal | Good | Poor | Cool | 4 | 3 | 4 | 4 | RL | 102.4 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Dobutamine, Norepinephrine | Y | Y | 2 | 10 | NS | 25.8 | 139 | 7.26 | 76 | 30 | 100 | 15.2 | -13.6 |
| 21 | D | Hypotension | Poor | Poor | Cool | 1 | 1 | 1 | 2 | RL | 97 | Cyanosis | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 1 | 20 | NS | -2.2 | 39 | 7.09 | 176 | 80 | 100 | 20.5 | -5.5 |
| 22 | JS | Hypotension | Good | Poor | Cool | 2 | 2 | 4 | 2 | RL | 98.6 | Normal | GIT | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 43.9 | 15.4 | 7.27 | 145 | 25 | 70 | 14.1 | -15.4 |
| 23 | IS | Normal | Good | Good | Cool | 3 | 4 | 5 | 4 | RL | 102 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | N | NA | N | Y | 1 | 5 | NS | 31 | -12 | 7.46 | 98 | 27 | 100 | 22.4 | -4.6 |
| 24 | RY | Hypotension | Good | Poor | Cool | 2 | 2 | 3 | 4 | RL | 101.3 | Pallor | GIT | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 20 | NS | 12.3 | 8.2 | 7.35 | 45 | 33 | 100 | 19.9 | -6.8 |
| 25 | JJ | Normal | Good | Good | Cool | 3 | 4 | 4 | 4 | RL | 101.7 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | N | NA | Y | N | 0 | NA | NA | 22.07 | 7.3 | 7.41 | 88 | 48 | 100 | 29 | 5.8 |
| 26 | D | Normal | Good | Good | Cool | 4 | 5 | 6 | 2 | RL | 98 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Epinephrine, Norepinephrine | Y | N | 0 | NA | NA | 19.43 | -52.06 | 7.38 | 95 | 38 | 60 | 23.1 | -2.6 |
| 27 | MK | Normal | Good | Good | Warm | 3 | 4 | 4 | 2 | RL | 100 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Dobutamine, Epinephrine | Y | Y | 1 | 10 | NS | 22.74 | 20.34 | 7.38 | 167 | 38 | 100 | 23.1 | -2.6 |
| 28 | NS | Normal | Good | Good | Warm | 3 | 2 | 4 | 2 | RL | 102.2 | Normal | CNS | N | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 5.8 | 2.8 | 7.36 | 68 | 40 | 21 | 22.4 | -6.3 |
| 29 | G | Normal | Good | Good | Warm | 4 | 2 | 4 | 2 | RL | 101 | Pallor | Endocrinology | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine | Y | Y | 1 | 20 | NS | 26.35 | -4.29 | 7.04 | 49 | 17 | 21 | 5.3 | -26 |
| 30 | VK | Normal | Good | Good | Warm | 2 | 2 | 4 | 2 | RL | 102.3 | Pallor | Renal | N | Y | Invasive | Extrapulmonary | N | N | NA | N | Y | 1 | 10 | NS | 22.7 | 28.2 | 7.47 | 38 | 37 | 21 | 26.9 | 3.2 |
| 31 | JS | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 99.8 | Normal | GIT | N | N | NA | NA | N | N | NA | N | Y | 0 | NA | NA | 11.2 | 10.2 | 7.5 | 59 | 43 | 21 | 32.1 | 10.3 |
| 32 | S | Hypotension | Poor | Poor | Cool | 1 | 1 | 1 | 3 | RL | 99.4 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 74.6 | 14.5 | 6.9 | 44 | 38 | 100 | 5.9 | -25.5 |
| 33 | S | Normal | Good | Poor | Cool | 2 | 2 | 4 | 3 | RL | 100.2 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 28.4 | 12.2 | 7.01 | 67 | 54 | 100 | 16.24 | -12.4 |
| 34 | P | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 2 | RL | 101 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine | Y | Y | 3 | 20 | NS | 42 | 5.5 | 6.9 | 58 | 20 | 40 | 3 | -27.4 |
| 35 | GT | Hypotension | Good | Good | Cool | 3 | 3 | 5 | 2 | RL | 100.7 | Pallor | GIT | Y | N | NA | NA | N | N | NA | N | N | 1 | 10 | NS | 7.68 | -27.6 | 7.47 | 202 | 26 | 40 | 21.5 | -4.5 |
| 36 | C | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 2 | RL | 99.6 | Normal | Rheumatology | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Epinephrine | Y | Y | 2 | 20 | NS | 21.4 | 10.8 | 7.15 | 68 | 42 | 100 | 18.4 | -8.4 |
| 37 | H | Normal | Good | Good | Warm | 4 | 2 | 5 | 2 | RL | 106.2 | Pallor | Renal | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 8.75 | 20.7 | 7.3 | 59 | 44 | 30 | 22.8 | -2.7 |
| 38 | J | Hypotension | Good | Poor | Cool | 2 | 2 | 4 | 3 | RL | 101.2 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 0 | NA | NA | 17.74 | 12.2 | 7.02 | 130 | 112 | 100 | 22.6 | 2.1 |
| 39 | D | Normal | Good | Good | Cool | 4 | 3 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine | Y | Y | 1 | 10 | NS | 12.4 | 10.2 | 7.11 | 62 | 32 | 100 | 16 | -14.4 |
| 40 | A | Hypotension | Good | Poor | Cool | 2 | 1 | 4 | 2 | RL | 101.7 | Normal | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine | Y | Y | 1 | 20 | NS | 12.17 | 15.2 | 7.02 | 63 | 66 | 40 | 29.1 | 6.2 |
| 41 | RS | Hypotension | Good | Poor | Cool | 3 | 4 | 5 | 2 | RL | 100.6 | Pallor | GIT | Y | N | Non Invasive | Extrapulmonary | Y | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 12.8 | -10.5 | 7.07 | 53 | 16 | 30 | 6 | 25.5 |
| 42 | AS | Normal | Good | Good | Warm | 3 | 4 | 5 | 2 | RL | 99.6 | Normal | Resp | Y | Y | Non invasive | Pulmonary | Y | N | NA | N | N | 0 | NA | NA | 13.4 | 16.7 | 7.36 | 35 | 39 | 21 | 20.5 | -5.6 |
| 43 | T | Normal | Good | Good | Cool | 4 | 3 | 5 | 2 | RL | 102.2 | Pallor | GIT | N | N | Non Invasive | NA | Y | Y | Dopamine | N | Y | 1 | 20 | NS | 20.3 | 3.3 | 7.38 | 40 | 34 | 21 | 21.1 | -5 |
| 44 | SK | Normal | Good | Good | Warm | 4 | 2 | 5 | 2 | RL | 103.2 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | N | NA | N | N | 0 | NA | NA | 5.8 | -17.2 | 7.33 | 57 | 49 | 60 | 24.5 | -0.1 |
| 45 | R | Normal | Good | Good | Warm | 3 | 4 | 5 | 3 | RL | 99.6 | Normal | GIT | N | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | -1.1 | 6.4 | 7.42 | 37 | 36 | 21 | 23.7 | -0.7 |
| 46 | A | Normal | Good | Poor | Cool | 2 | 2 | 3 | 3 | RL | 104.1 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine | Y | Y | 3 | 20 | NS | 56 | 26.5 | 6.98 | 62 | 26 | 100 | 5.8 | -25.5 |
| 47 | J | Hypertension | Good | Good | Warm | 3 | 2 | 4 | 2 | RL | 101 | Pallor | Endocrinology | Y | Y | Invasive | Extrapulmonary | N | N | NA | Y | Y | 1 | 10 | NS | -9 | 1.1 | 7.23 | 119 | 33 | 21 | 15.1 | -13.8 |
| 48 | S | Normal | Good | Good | Warm | 3 | 3 | 5 | 2 | RL | 102 | Icterus | GIT | N | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 36 | 14.5 | 7.42 | 200 | 30 | 21 | 21.6 | -5 |

| S. No. | Initial Name | Hb | TLC | DLC | TSB | DSB | Platelets | LDH | Na | K | BU | CR | OT | PT | Lactate | CRP | RBS | Vit. D | CPK-MB | Prism Score | 1 (<24 hrs) Respiratory | 1 (<24 hrs) Coagulation | 1 (<24 hrs) Liver | 1 (<24 hrs) CVH | 1 (<24 hrs) CNS | 1 (<24 hrs) Renal System | 1 (<24 hrs) Total | Day Respiratory | Day_ Coagulation | Day_ Liver | Day_ CVH | Day_ CNS | Day_ Renal System | Day_ Total | SOFA Score_Resp. rate | SOFA Score GCS | SOFA Score_SBP | SOFA Score Total | Duration of Stay | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MK | 9.5 | 7.7 | 64/30 | 0.81 | 0.52 | 44 | 1075 | 135 | 4.21 | 24 | 0.48 | 132 | 48 | 2.6 | 246.6 | 43 | 15.4 | 107 | 14 | 3 | 3 | 0 | 2 | 1 | 0 | 9 | 2 | 1 | 0 | 2 | 4 | 0 | 9 | 1 | 1 | 1 | 3 | 14 | Shifted |
| 2 | K | 14.8 | 13.4 | 86.8/11.8 | 2.15 | 1.85 | 18 | 402 | 141 | 4.7 | 105 | 1.05 | 70 | 21 | 6.2 | 143 | 149 | 23.3 | NA | 12 | 4 | 4 | 2 | 4 | 4 | 0 | 18 | 3 | 2 | 2 | 4 | 4 | 0 | 15 | 1 | 1 | 1 | 3 | 11 | Shifted |
| 3 | GS | 8.6 | 4.7 | 63/32 | 0.45 | 0.21 | 307 | NA | 146 | 5.75 | 41 | 0.51 | 44 | 41 | 9.1 | 71.9 | 152 | 10.2 | NA | 11 | 4 | 0 | 0 | 1 | 0 | 5 | 3 | 1 | 0 | 4 | 4 | 0 | 12 | 1 | 1 | 0 | 2 | 15 | Shifted |
| 4 | V | 9.7 | 10.5 | 78.1/20.7 | 0.66 | 0.54 | 533 | 887 | 139 | 5.1 | 26 | 0.23 | 61 | 17 | 1.4 | 265.5 | 93 | 9.38 | 73 | 11 | 2 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 3 | 2 | 0 | 8 | 1 | 0 | 0 | 1 | 8 | Shifted |
| 5 | P | 11.5 | 18.4 | 91/4 | 1.35 | 0.55 | 228 | NA | 132 | 6.95 | 91 | 3.56 | 2570 | 1796 | 3.3 | 273.4 | 88 | 2.69 | NA | 15 | 3 | 0 | 1 | 2 | 2 | 3 | 11 | 4 | 0 | 0 | 2 | 1 | 4 | 11 | 1 | 1 | 1 | 3 | 30 | Shifted |
| 6 | AB | 10.7 | 3.6 | 60.4/33.3 | 0.66 | 0.21 | 140 | 1130 | 138 | 4.28 | 19 | 0.45 | 109 | 28 | 1.1 | 70.9 | 107 | 18.1 | NA | 6 | 2 | 1 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 3 | Shifted |
| 7 | HK | 7.8 | 2.6 | 23.6/73.4 | 0.3 | 0.21 | 155 | NA | 131 | 5.3 | 33 | 0.29 | 102 | 26 | 1.9 | 63.4 | 88 | 42 | NA | 8 | 4 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 1 | 0 | 5 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 8 | PG | 13.1 | 11.1 | 90.9/5.6/3/0 | 0.55 | 0.42 | 48 | NA | 132 | 3.77 | 48 | 0.82 | 8461 | 4256 | 8.6 | 212 | 139 | 11.2 | 210 | 18 | 3 | 3 | 0 | 0 | 2 | 0 | 8 | 4 | 4 | 2 | 4 | 4 | 3 | 21 | 1 | 1 | 0 | 1 | 2 | Died |
| 9 | SS | 10.5 | 1 | 49.2/46.5 | 0.63 | 0.41 | 38 | 419 | 137 | 3.69 | 45 | 0.59 | 120 | 29 | 3.4 | 287.7 | 118 | 13.3 | NA | 21 | 4 | 3 | 0 | 2 | 2 | 0 | 11 | 4 | 3 | 0 | 4 | 4 | 1 | 16 | 1 | 1 | 1 | 3 | 3 | Died |
| 10 | PD | 8 | 16 | 83.2/11.6 | 0.85 | 0.61 | 173 | NA | 139 | 3.42 | 15 | 0.33 | 40 | 35 | 1.6 | 328.9 | 93 | 24.4 | NA | 12 | 4 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 3 | Shifted |
| 11 | V | 11.2 | 14.7 | 92.7/6.8 | 0.82 | 0.45 | 152 | NA | 136 | 4.8 | 42 | 0.36 | 28 | 26 | 2.4 | 256 | 76 | 12.4 | NA | 11 | 4 | 0 | 0 | 0 | 4 | 1 | 9 | 3 | 0 | 0 | 2 | 3 | 0 | 8 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 12 | G | 9.6 | 6.3 | 67/32.2 | 1.81 | 0.82 | 64 | NA | 147 | 3.31 | 38 | 0.63 | 8141 | 3035 | 0.8 | 46 | 59 | 7.04 | NA | 15 | 2 | 2 | 1 | 4 | 4 | 0 | 13 | 4 | 3 | 2 | 4 | 4 | 1 | 18 | 1 | 1 | 1 | 3 | 2 | Died |
| 13 | K | 10.3 | 27.9 | 83.4/15.2 | 0.51 | 0.31 | 248 | NA | 138 | 3.89 | 42 | 0.38 | 42 | 18 | 2.6 | 57.7 | 102 | 8.06 | NA | 7 | 3 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 4 | Shifted |
| 14 | H | 8.2 | 12.4 | 83.1/ 14.6 | 0.71 | 0.54 | 60 | NA | 147 | 5.8 | 50 | 0.58 | 765 | 172 | 10.4 | 103.7 | 20 | 2.3 | NA | 47 | 4 | 4 | 0 | 4 | 4 | 0 | 16 | 3 | 2 | 0 | 4 | 4 | 0 | 13 | 1 | 1 | 1 | 3 | 35 | Shifted |
| 15 | M | 9.1 | 2109 | 78/20 | 0.21 | 0.1 | 665 | NA | 137 | 4.3 | 37 | 0.3 | 12 | 6 | 1.3 | 274.6 | 100 | 10.21 | NA | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | Shifted |
| 16 | AS | 12.8 | 11.4 | 93.7/4.3 | 0.63 | 0.44 | 384 | NA | 144 | 4.72 | 25 | 0.67 | 23 | 18 | 4.3 | 48.5 | 167 | 6.7 | NA | 13 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 3 | Shifted |
| 17 | I | 10.2 | 12.4 | 78/14.6 | 0.29 | 0.15 | 219 | NA | 141 | 3.47 | 20 | 0.33 | 30 | 9 | 1.6 | 172.2 | 150 | 21.4 | NA | 15 | 2 | 0 | 0 | 3 | 4 | 0 | 9 | 3 | 2 | 0 | 4 | 4 | 0 | 13 | 1 | 1 | 1 | 3 | 11 | DAMA |
| 18 | G | 11.4 | 5.1 | 61.7/35.5 | 0.58 | 0.37 | 50 | NA | 144 | 5.01 | 19 | 0.59 | 131 | 85 | 1.2 | 88.9 | 105 | 25.5 | NA | 4 | 3 | 3 | 0 | 3 | 2 | 0 | 11 | 3 | 1 | 0 | 4 | 4 | 0 | 12 | 1 | 0 | 0 | 1 | 10 | Shifted |
| 19 | NG | 10.3 | 36.1 | 88.4/5.3 | 0.23 | 0.13 | 781 | NA | 133 | 3.59 | 19 | 0.71 | 20 | 12 | 7.3 | 36.2 | 420 | 12.2 | NA | 22 | 3 | 0 | 0 | 4 | 0 | 7 | 3 | 0 | 0 | 2 | 3 | 0 | 8 | 1 | 1 | 0 | 2 | 4 | Shifted |
| 20 | SK | 13.4 | 4.6 | 76.2 | 1.08 | 0.79 | 249 | NA | 141 | 3.95 | 33 | 0.4 | 60 | 25 | 3.7 | 2.2 | 133 | 30.2 | NA | 17 | 3 | 0 | 0 | 4 | 2 | 0 | 9 | 2 | 3 | 0 | 4 | 3 | 0 | 12 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 21 | D | 10.3 | 18.7 | 39.5/58.9 | 1.1 | 0.82 | 419 | 2031 | 132 | 7.15 | 40 | 0.49 | 253 | 61 | >15 | 195.8 | 18 | 4.5 | NA | 38 | 3 | 0 | 0 | 4 | 4 | 0 | 11 | 4 | 2 | 0 | 4 | 4 | 0 | 14 | 1 | 1 | 1 | 3 | 32 | Shifted |
| 22 | JS | 8.6 | 5.7 | 81.2 | 0.21 | 0.09 | 347 | NA | 131 | 5.01 | 65 | 0.7 | 239 | 116 | 5.1 | 190.6 | 19 | 10.4 | NA | 47 | 2 | 0 | 0 | 4 | 3 | 0 | 9 | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 1 | 1 | 1 | 3 | 20 | Shifted |
| 23 | IS | 8.5 | 14 | 79.9/19.1 | 0.18 | 0.11 | 401 | NA | 136 | 4.62 | 41 | 0.26 | 131 | 115 | 1.9 | 241.2 | 124 | 5.2 | NA | 11 | 4 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 2 | 7 | Shifted |
| 24 | RY | 7.3 | 8.3 | 90.4 | 5.01 | 3.2 | 104 | 512 | 150 | 4.34 | 112 | 38 | 256 | 268 | 2.4 | 80.2 | 101 | 35 | NA | 23 | 3 | 1 | 2 | 4 | 3 | 0 | 13 | 4 | 2 | 3 | 4 | 3 | 16 | 32 | 1 | 1 | 1 | 3 | 4 | Died |
| 25 | JJ | 5.1 | 10.1 | 94.4/3 | 0.41 | 0.23 | 345 | NA | 140 | 5.02 | 13 | 0.2 | 34 | 38 | 1.7 | 162.6 | 132 | 10.3 | NA | 15 | 4 | 0 | 0 | 0 | 2 | 0 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 3 | 8 | Shifted |
| 26 | D | 6.9 | 16.1 | 83 | 0.48 | 0.29 | 574 | NA | 136 | 4.82 | 75 | 0.92 | 30 | 13 | 2.7 | 70.4 | 116 | 16.6 | NA | 6 | 3 | 0 | 0 | 4 | 0 | 0 | 7 | 3 | 0 | 0 | 3 | 4 | 0 | 10 | 1 | 0 | 0 | 1 | 9 | DAMA |
| 27 | MK | 10 | 6.2 | 76.7/20.9 | 0.2 | 0.14 | 586 | NA | 143 | 4.92 | 38 | 0.28 | 51 | 36 | 3.7 | 1 | 380 | 11.4 | 943 | 13 | 3 | 0 | 0 | 3 | 2 | 0 | 8 | 3 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 1 | 1 | 3 | 10 | Shifted |
| 28 | NS | 12.7 | 11.4 | 67.4/24.4 | 0.48 | 0.22 | 182 | NA | 138 | 3.8 | 42 | 0.58 | 42 | 41 | 1.3 | 12 | 68 | 2.6 | NA | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 8 | Shifted |
| 29 | G | 10 | 6.3 | 67.8/21.7 | 0.25 | 0.13 | 120 | NA | 136 | 3 | 196 | 5.98 | 354 | 252 | 1.5 | 14.2 | 315 | 14.6 | NA | 7 | 0 | 1 | 0 | 0 | 2 | 4 | 7 | 2 | 1 | 0 | 0 | 4 | 4 | 11 | 1 | 1 | 1 | 3 | 10 | Shifted |
| 30 | VK | 8.8 | 17.4 | 79.9/9.4 | 0.62 | 0.43 | 388 | NA | 145 | 3.67 | 73 | 3.58 | 81 | 16 | 1 | 49.2 | 109 | 5.95 | NA | 4 | 2 | 0 | 0 | 0 | 1 | 3 | 6 | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 31 | JS | 11.1 | 11.9 | 65.7/27.6 | 3.7 | 3.21 | 202 | 1015 | 139 | 3.7 | 19 | 0.25 | 693 | 2979 | 2.1 | 35.5 | 101 | 16 | NA | 6 | 0 | 0 | 2 | 0 | 1 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 32 | S | 6.7 | 6.1 | 35/55.8 | 1.06 | 0.82 | 39 | NA | 175 | 7.09 | 83 | 1.64 | 1127 | 714 | 9.6 | 34.2 | 40 | 20.4 | NA | 21 | 4 | 3 | 0 | 4 | 4 | 1 | 16 | 3 | 3 | 0 | 4 | 4 | 1 | 15 | 1 | 1 | 1 | 3 | 3 | Died |
| 33 | S | 8.6 | 20.3 | 79.9/41.2 | 1.1 | 0.66 | 68 | NA | 121 | 4.1 | 80 | 1.71 | 7219 | 1058 | 2.2 | 89.9 | 136 | 16.7 | 1521 | 22 | 4 | 2 | 0 | 4 | 3 | 1 | 14 | 4 | 3 | 2 | 4 | 3 | 2 | 18 | 1 | 1 | 1 | 3 | 3 | Died |
| 34 | P | 9.5 | 9 | 64.6/28 | 0.15 | 0.84 | 361 | NA | 157 | 4.06 | 42 | 0.59 | 121 | 131 | 2 | 65.8 | 105 | 10.2 | NA | 5 | 3 | 0 | 0 | 3 | 3 | 0 | 9 | 2 | 1 | 0 | 0 | 4 | 0 | 7 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 35 | GT | 6 | 24.3 | 58.8/30.2 | 47.9 | 33.4 | 341 | NA | 140 | 5.23 | 41 | 0.25 | 4796 | 4425 | 9.7 | 17.5 | 113 | 18.9 | NA | 7 | 0 | 0 | 4 | 0 | 2 | 0 | 6 | 0 | 0 | 4 | 0 | 1 | 0 | 5 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 36 | C | 13.2 | 12.7 | 82.2/19.1 | 0.91 | 0.67 | 102 | NA | 138 | 3.2 | 88 | 1.28 | 58 | 49 | 3.2 | 102 | 72 | 7.2 | NA | 7 | 4 | 1 | 0 | 4 | 2 | 1 | 12 | 2 | 1 | 0 | 2 | 1 | 1 | 7 | 1 | 1 | 1 | 3 | 9 | Shifted |
| 37 | H | 8.1 | 20.4 | 63/25 | 0.51 | 0.37 | 11 | NA | 142 | 5.58 | 27 | 0.39 | 56 | 62 | 3 | 31.9 | 76 | 2.3 | NA | 6 | 3 | 4 | 0 | 0 | 2 | 0 | 9 | 3 | 3 | 0 | 0 | 4 | 0 | 10 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 38 | J | 8.6 | 5.9 | 76.5/20.2 | 0.77 | 0.52 | 40 | NA | 140 | 3.21 | 28 | 0.33 | 224 | 35 | 1 | 27.2 | 86 | 14.3 | NA | 8 | 3 | 3 | 0 | 3 | 3 | 0 | 12 | 4 | 3 | 0 | 4 | 4 | 1 | 16 | 1 | 1 | 1 | 3 | 9 | Died |
| 39 | D | 12.8 | 9.1 | 65/26 | 0.43 | 0.12 | 118 | NA | 136 | 4.2 | 42 | 0.56 | 48 | 42 | 5.2 | 112 | 56 | 2.4 | 98 | 19 | 4 | 1 | 0 | 4 | 2 | 0 | 11 | 3 | 1 | 0 | 4 | 3 | 0 | 11 | 1 | 1 | 1 | 3 | 2 | DAMA |
| 40 | A | 6.8 | 13.2 | 68/28 | 0.19 | 0.04 | 160 | NA | 143 | 4.12 | 41 | 0.15 | 87 | 33 | 4.9 | 44.4 | 148 | 21.5 | NA | 10 | 3 | 0 | 0 | 3 | 3 | 0 | 9 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 3 | 10 | Shifted |
| 41 | RS | 8.8 | 22.1 | 43/45.2 | 0.65 | 0.48 | 492 | NA | 127 | 5.16 | 238 | 2.25 | 46 | 42 | 1.2 | 1 | 85 | 48.48 | 64 | 11 | 1 | 0 | 0 | 4 | 2 | 2 | 9 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 3 | DAMA |
| 42 | AS | 7.8 | 11.6 | 65.7 | 0.64 | 0.36 | 293 | NA | 139 | 4.2 | 33 | 0.37 | 25 | 267 | 1.6 | 2.02 | 243 | 15.3 | NA | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 3 | Shifted |
| 43 | T | 6.8 | 8.1 | 34.3/58.9 | 1.37 | 1.33 | 41 | 681 | 132 | 4.08 | 28 | 0.38 | 384 | 194 | 2.3 | 364.5 | 99 | 11.2 | NA | 13 | 1 | 3 | 1 | 2 | 2 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 44 | SK | 10.5 | 15.4 | 72.8/18.6 | 0.98 | 0.56 | 256 | NA | 138 | 4.2 | 50 | 0.38 | 62 | 48 | 2.3 | 119 | 123 | 5.6 | 56 | 8 | 4 | 0 | 0 | 0 | 2 | 0 | 6 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 45 | R | 13.8 | 4.9 | 64.6/20.8 | 3.29 | 2.76 | 140 | 3929 | 139 | 4.25 | 12 | 0.57 | 2 | 19 | 2.8 | 22.5 | 97 | 23 | NA | 15 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 1 | 3 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 1 | 4 | Shifted |
| 46 | A | 10.7 | 20.8 | 42.6/47.9 | 0.81 | 0.52 | 87 | NA | 172 | 2.57 | 107 | 1.87 | 98 | 46 | 1.8 | 72.3 | 250 | 38 | NA | 11 | 4 | 2 | 1 | 4 | 3 | 1 | 15 | 1 | 3 | 1 | 2 | 1 | 0 | 8 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 47 | J | 11.9 | 24.3 | 80.8/14.2 | 0.71 | 0.53 | 450 | NA | 143 | 5.2 | 37 | 0.57 | 61 | 68 | 1.3 | 0.4 | 67 | 10.2 | NA | 13 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 2 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 1 | 0 | 1 | 24 | Shifted |
| 48 | S | 5.8 | 12.2 | 55.6/32.9 | 4.16 | 3.98 | 224 | 265 | 277 | 4.65 | 25 | 0.12 | 44 | 26 | 1 | 19.8 | 162 | 21 | NA | 5 | 0 | 1 | 2 | 0 | 2 | 1 | 6 | 0 | 2 | 0 | 0 | 2 | 0 | 4 | 1 | 1 | 0 | 2 | 1 | Shifted |

| S. No. | Initial Name | DOA | Age (Mths) | Sex | MDR No. | Main Diagnosis | Weight Actual | Weight Expected | Height Actual | Height Expected | BMI Actual | BMI Expected | Airway | RR | RR Interpretation | Efforts | A/E | Auscultation | SPO2 | HR | HR Interpretation | Rhythm | CFT | SBP | DBP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | K | 03-03-2019 | 18 | M | 681560 | Acute Bacterial meningitis secondary to head trauma with respiratory failure with Shock | 12 | 10.9 | 93 | 82.3 | 48.5 | 47.4 | Open & Unstable | 42 | Tachypnea | Normal | Normal | Crackles | 94 | 170 | Tachycardia | Sinus | 2 | 110 | 70 |
| 50 | TS | 02-04-2019 | 8 | M | 701159 | Bronchopneumonia with cerebritis with respiratory failure with septic shock with post CPR survivor | 10 | 8 | 71 | 68.7 | 44 | 43.5 | Open & Stable | On Bains | Bradypnea | NA | Normal | None | 98 | 165 | Normal | Sinus | 4 | 68 | 40 |
| 51 | RPS | 12-04-2019 | 84 | M | 707359 | Right lobar pneumonia with empyema with failure to thrive | 15.5 | 21.2 | 116 | 119.4 | 11.5 | 14 | Open & Stable | 58 | Tachypnea | Increased | Differential | None | 82 | 124 | Tachycardia | Sinus | 2 | 112 | 62 |
| 52 | KK | 22-04-2019 | 192 | F | 713977 | Guillian Barre Syndrome with Acute flaccid paralysis with Respiratory Faliure | 45 | 49.7 | 151 | 157.2 | 19.7 | 20.3 | Open & Unstable | 12 | Bradypnea | Normal | Normal | None | 98 | 102 | Normal | Sinus | 2 | 120 | 80 |
| 53 | TK | 13-04-2019 | 60 | F | 708531 | Pulmonary tuberculosis with Failure to thrive with respiratory failure with sepsis with septic shock with ARDS | 15 | 16.4 | 108 | 107.5 | 12.8 | 14.3 | Open & Unstable | 72 | Tachypnea | Increased | Normal | None | 66 | 194 | Tachycardia | Sinus | <2 | 60 | 38 |
| 54 | A | 21-04-2019 | 168 | F | 713075 | DM Type 1 with severe diabetic ketoacidosis with respiratory failure with shock | 30 | 46.4 | 146 | 154.7 | 14.08 | 19.4 | Open & Unstable | 40 | Tachypnea | Acidotic | Normal | None | 98 | 123 | Tachycardia | Sinus | 2 | 112 | 68 |
| 55 | V | 08-05-2019 | 60 | M | 724558 | Disseminated tuberculosis with tubercular meningitis with bronchopneumonia with septic shock with respiratory failure | 17 | 19.6 | 107 | 113 | 14.9 | 15.3 | Open & Unstable | 48 | Tachypnea | Increased | Normal | Crackles | 93 | 152 | Tachycardia | Sinus | 4 | 82 | 64 |
| 56 | M | 04-05-2019 | 108 | F | 722038 | Acute pancreatitis with Acute kidney injury with shock with respiratory failure with metabolic acidosis with hyperkalemia with morbid obesity | 90 | 27.2 | 150 | 131.4 | 40 | 15.8 | Open & Stable | On Bains | Bradypnea | NA | Normal | Crackles | 28 | 68 | Bradycardia | Sinus | 3 | 92 | 64 |
| 57 | G | 04-05-2019 | 4 | M | 722137 | Dilated cardiomyopathy with Viral myocarditis with respiratory failure with hypocalcemia with pulmonary edema with hyperkalemia with Megaloblastic anemia | 8 | 7.5 | 66 | 65.9 | 43 | 42.6 | Open & Unstable | 68 | Tachypnea | Increased | Normal | Crackles | 64 | 174 | Normal | Sinus | 4 | 96 | 52 |
| 58 | JS | 09-05-2019 | 30 | M | 725349 | Acute Stroke (Right MCA territory ) with Facial nerve palsy with Left Hemparesis | 14 | 13.3 | 92 | 91.9 | 49 | 48.9 | Open & Stable | 35 | Normal | Normal | Normal | None | 98 | 108 | Normal | Sinus | 2 | 104 | 56 |
| 59 | A | 05-05-2019 | 60 | M | 722257 | Sepsis with Acute vomitings with Acute kidney injury with Severe Anemia | 8.5 | 17.1 | 116 | 108 | 13.8 | 14.7 | Open & Unsable | 41 | Tachypnea | Normal | Normal | None | 89 | 142 | Tachycardia | Sinus | 2 | 102 | 56 |
| 60 | MS | 25-05-2019 | 156 | M | 735936 | Septic arthritis with pyogenic pericardiac effusion (post-op decompression right Hip joint) with pericardial window | 41.2 | 43.3 | 152 | 154.3 | 17.9 | 18.2 | Open & Stable | 20 | Normal | Normal | Normal | None | 98 | 128 | Tachycardia | Sinus | 2 | 100 | 60 |
| 61 | A | 01-06-2019 | 96 | F | 739829 | Toxic shock syndrome with septic shock with respiratory failure with DIC with purpura fulminans | 21 | 24 | 120 | 125.4 | 14.5 | 15.3 | Open & Unstable | 48 | Tachypnea | Increased | Normal | None | 96 | 130 | Tachycardia | Sinus | <2 | 66 | 34 |
| 62 | S | 26-05-2019 | 12 | M | 736024 | Sepsis with Acute Diarrhoeal disease with Severe dehydration with severe metabolic acidosis with shock with Acute Bronchopneumonia with Respiratory failure | 10 | 9.6 | 72 | 75.7 | 48 | 46.1 | Obstructed | Gasping | Bradypnea | Increased | Poor | Wheeze | 70 | 220 | Tachycardia | Sinus | 4 | 48 | 32 |
| 63 | R | 02-06-2019 | 12 | M | 740500 | Sepsis with acute diarrhoeal disease with severe dehydration with shock with metabolic acidosis with hyponatremia | 10 | 9.6 | 75 | 75.7 | 48 | 46.1 | Open & Stable | 40 | Normal | Normal | Normal | None | 98 | 150 | Normal | Sinus | 4 | 62 | 46 |
| 64 | A | 05-06-2019 | 60 | F | 742157 | Left cervical lymphadenitis with septic shock with respiratory failure with acute hepatitis with coagulopathy with AKI with pulmonary hemorrhage with catecholamine resistant shock | 15 | 16.4 | 102 | 107.5 | 14.4 | 14.3 | Open & Stable | 48 | Tachypnea | Increased | Normal | None | 92 | 148 | Tachycardia | Sinus | 3 | 100 | 60 |
| 65 | S | 07-06-2019 | 4 | M | 744208 | Acute febrile with acute meningoencephalitis with AKI with acute hepatitis ?Reye's like illness ? Leptospirosis with DIC with shock with hypo calcemia with hyperkalemia with metabolic acidosis | 8 | 7 | 62 | 63.9 | 42 | 41.6 | Obstructed | On Bains | Bradypnea | NA | Poor | Crackles | 54 | 188 | Tachycardia | Sinus | 5 | 56 | 38 |
| 66 | A | 26-07-2019 | 168 | M | 775660 | Acute Hepatitis with Hepatic Encephalopathy Grade 2 with Acute Kidney injury with Respiratory failure with Sepsis with Septic Shock with Ventilator Acquired Pneumonia with Right sided pneumonia with Blood culture positive for MRSA | 40 | 56.4 | 150 | 159.9 | 17.8 | 22.3 | Open & Unstable | 54 | Tachypnea | Increased | Normal | Crackles | 88 | 134 | Tachycardia | Sinus | 2 | 100 | 50 |
| 67 | A | 25-07-2019 | 14 | M | 774986 | Bacterial tracheitis with respiratory failure with sepsis with septic shock with myocarditis | 9 | 10.1 | 78 | 78 | 50 | 46.6 | Obstructed | 94 | Tachypnea | Increased | Poor | Stridor | 88 | 189 | Tachycardia | Sinus | 4 | 100 | 60 |
| 68 | ES | 21-07-2019 | 4 | M | 771805 | Congenital heart disease (ASD) with peritusis like illness with respiratory failure | 5.6 | 7 | 55 | 63.9 | 42 | 41.6 | Open & Stable | 48 | Normal | Increased | Normal | None | 98 | 188 | Normal | Sinus | 2 | 78 | 52 |
| 69 | R | 30-06-2019 | 36 | F | 758012 | A/h/o Machine Oil Ingestion with Sepsis with Septic Shock with Respiratory Failure with Acute Respiratory distress Syndrome with Acute Kidney Injury with Blood culture positive for Escherichia coli | 16 | 13.9 | 100 | 95.1 | 46 | 48.5 | Open & Stable | On Bains | Bradypnea | NA | Normal | None | 96 | 156 | Tachycardia | Sinus | 3 | 58 | 38 |
| 70 | PG | 01-08-2019 | 7 | F | 670320 | Sepsis with acute diarrhoeal disease with severe dehydration | 7 | 7.6 | 68 | 69 | 44 | 44 | Open & Stable | 48 | Normal | Increased | Normal | None | 98 | 150 | Normal | Sinus | 3 | 62 | 42 |
| 71 | H | 30-07-2019 | 72 | F | 132420 | Acute exacerbation of bronchial asthma with H1N1 pneumonia with Respiratory distress | 23 | 19.9 | 115 | 116.5 | 13.4 | 12.07 | Open & Unstable | 40 | Tachypnea | Increased | Poor | Wheeze | 87 | 112 | Normal | Sinus | 3 | 90 | 50 |
| 72 | MK | 12-08-2019 | 156 | F | 787003 | Herpes encephalitis with respiratory failure with shock | 40 | 43.6 | 162 | 152.2 | 15.24 | 18.8 | Open & Unstable | 32 | Tachypnea | Increased | Normal | None | 98 | 101 | Normal | Sinus | 2 | 100 | 60 |
| 73 | JV | 09-08-2019 | 156 | F | 785236 | Acute Autoimmune Encephalitis with Respiratory failure | 78 | 43.6 | 166 | 152.2 | 28.3 | 18.8 | Open & Unstable | 18 | Normal | Normal | Normal | None | 88 | 130 | Tachycardia | Sinus | 2 | 110 | 60 |
| 74 | RD | 09-08-2019 | 22 | M | 805393 | Acute meningoencephalitis with respiratory distress | 10 | 11.8 | 88 | 86 | 48 | 48 | Open & Unstable | 88 | Tachypnea | Increased | Normal | None | 96 | 138 | Normal | Sinus | 2 | 60 | 40 |
| 75 | A | 14/09/2019 | 144 | F | 810387 | Dengue fever with shock with respiratory distress with Overweight | 50 | 39.8 | 148 | 148.4 | 22.8 | 18 | Open & Unstable | 36 | Tachypnea | Increased | Normal | None | 92 | 142 | Tachycardia | Sinus | 3 | 96 | 58 |
| 76 | NJ | 13/09/2019 | 144 | M | 808918 | Acute viral hepatitis A with grade III encephalopathy with Coagulopathy with underlying G6PD deficiency with AKI | 35 | 39 | 144 | 148.4 | 16.91 | 17.7 | Open & Stable | 19 | Normal | Normal | Normal | None | 96 | 128 | Tachycardia | Sinus | 2 | 94 | 68 |
| 77 | P | 15/09/2019 | 144 | F | 810493 | Scrub typhus fever with respiratory distress with shock | 40 | 39.8 | 157 | 148 | 16.24 | 16.1 | Open & Unstable | 45 | Tachypnea | Increased | Differential | Crackles | 82 | 148 | Tachycardia | Sinus | 3 | 68 | 52 |
| 78 | P | 14/09/2019 | 108 | F | 810432 | Acute meningoencephalitis? Japanese encephalitis with respiratory failure | 18 | 27.2 | 131 | 131.4 | 10.65 | 16.09 | Open & Stable | 20 | Normal | Normal | Normal | None | 99 | 78 | Normal | Sinus | >5 | 101 | 70 |
| 79 | L | 16/09/2019 | 1 | F | 789848 | Sepsis with acute bronchopneumonia with respiratory distress | 1.2 | 3.3 | 34.5 | 49.9 | 28 | 34.5 | Open & Unstable | 62 | Tachypnea | Increased | Normal | Crackles | 82 | 172 | Normal | Sinus | 2 | 64 | 42 |
| 80 | N | 18/09/2019 | 60 | F | 812353 | Acute viral hepatitis-A with shock with Coagulopathy with encephalopathy (Grade-II) | 15 | 17.3 | 93 | 107.2 | 49 | 50.3 | Open & Stable | 28 | Normal | Normal | Normal | None | 98 | 114 | Normal | Sinus | 3 | 106 | 62 |
| 81 | G | 23/09/2019 | 36 | M | 816176 | Septic arthritis with septic shock with Bronchopneumonia with respiratory distress with thrombocytopenia with failure to thrive | 9.8 | 13.9 | 88 | 95.1 | 47.5 | 48.5 | Open & Unstable | 68 | Tachypnea | Increased | Normal | Crackles | 92 | 140 | Normal | Sinus | 2 | 66 | 42 |
| 82 | G | 22/09/2019 | 48 | F | 815410 | Sepsis with septic shock with encephalopathy with respiratory distress | 16 | 16.1 | 102 | 102.7 | 48 | 49.3 | Open & Unstable | 62 | Tachypnea | Increased | Differential | Crackles | 90 | 180 | Tachycardia | Sinus | 4 | 62 | 44 |
| 83 | A | 24/09/2019 | 170 | M | 817249 | Left shoulder septic arthritis with toxic shock syndrome with septic shock with sepsis associated encephalopathy | 45 | 34.7 | 152 | 142.7 | 19.4 | 17 | Open & Unstable | 50 | Tachypnea | Increased | Normal | None | 88 | 160 | Tachycardia | Sinus | >5 | 78 | 34 |
| 84 | A | 20/09/2019 | 168 | M | 814583 | Sepsis with Massive Pericardical effusion with Cardiac tamponade with failure to thrive | 30 | 48.2 | 152 | 159.9 | 12.98 | 18.7 | Open & Unstable | 38 | Tachypnea | Increased | Normal | Wheeze | 78 | 152 | Tachycardia | Sinus | 3 | 86 | 52 |
| 85 | N | 13/09/2019 | 36 | F | 803734 | Diptheria with sepsis with myocarditis with neuritis with Cardiogenis shock with paroxysmal supraventricular tachycardia | 13 | 13.9 | 96 | 95.1 | 47 | 48.5 | Open & Unstable | 48 | Tachypnea | Increased | Differential | Crackles | 88 | 172 | Tachycardia | Arrythmia | 3 | 66 | 46 |
| 86 | S | 21/09/2019 | 120 | M | 814634 | Severe dengue fever with respiratory failure with hypotensive & cardiogenic shock with pulmonary hemorrhage | 35 | 31.1 | 135 | 137.2 | 19.23 | 16.4 | Obstructed | Gasping | Bradypnea | Increased | Differential | Crackles | 72 | 152 | Tachycardia | Sinus | 3 | 62 | 44 |
| 87 | HB | 26/09/2019 | 120 | M | 818195 | Severe Dengue fever with shock | 28 | 31.1 | 128 | 137.2 | 17.07 | 16.4 | Open & Stable | 25 | Normal | Normal | Normal | None | 92 | 142 | Tachycardia | Sinus | 3 | 64 | 52 |
| 88 | S | 28/09/2019 | 120 | M | 821141 | Severe dengue fever with hypotensive shock with respiratory failure with seizures with myocarditis dengue encephalopathy | 36 | 31.1 | 147 | 137.2 | 16.7 | 16.4 | Open & unstable | 46 | Tachypnea | Increased | Normal | Crackles | 86 | 132 | Tachycardia | Sinus | 5 | 58 | 32 |
| 89 | A | 30/09/2019 | 168 | M | 819424 | Severe dengue fever with hypotensive shock with bilateral pleural effusion with ascitis | 63 | 31.1 | 150 | 137 | 24.6 | 18.7 | Open & Unstable | 32 | Tachypnea | Increased | Normal | None | 92 | 122 | Tachycardia | Sinus | 3 | 92 | 46 |
| 90 | V | 10-03-2019 | 120 | M | 822243 | Scrub typhus fever with acute Bronchopneumonia with sepsis with septic shock | 27 | 31.1 | 145 | 137.2 | 12.86 | 16.4 | Open & unstable | 42 | Tachypnea | Increased | Differential | Crackles | 82 | 118 | Tachycardia | Sinus | <2 | 100 | 60 |
| 91 | RS | 10-02-2019 | 120 | M | 821929 | Left femur osteomyelitis with Sepsis with septic shock | 24 | 31.1 | 131 | 137.2 | 13.95 | 16.4 | Open & Unstable | 32 | Tachypnea | Increased | Normal | None | 92 | 128 | Tachycardia | Sinus | 3 | 92 | 60 |
| 92 | MS | 10-03-2019 | 72 | M | 822764 | Acute bronchopneumonia with sepsis with septic shock with pulmonary hemorrhage with ARDS | 20 | 19.3 | 116 | 114.8 | 14.9 | 14.9 | Open &Unstable | 38 | Tachypnea | Increased | Normal | Crackles | 82 | 128 | Tachycardia | Sinus | <2 | 62 | 44 |
| 93 | P | 10-05-2019 | 96 | M | 823754 | Acute viral hepatitis-A with hepatic encephalapathy Grade-III with coagulopathy with underlying G6PD deficiency | 21 | 24.8 | 126 | 126.4 | 13.2 | 15.5 | Open & Stable | 22 | Normal | Increased | Normal | None | 92 | 112 | Normal | Sinus | 2 | 108 | 64 |

| S. No. | Initial Name | BP Interpretation | CP | PP | Skin Temp. | E | V | M | Pupil Size | Reaction | Exposure Temp | Exposure Color | Primary System Involved | Oxygen | Ventilation | Invasive/ non Invasive | Reason for intubation | NIV | Inotropes Yes/No | Inotropes_Type | Central line | Fluid Bolus requirement Yes/No | Fluid Bolus requirement No. | Fluid Bolus requirement Dose | Nature of fluid | Total fluid balance_1st 24 hrs | Total fluid balance_2nd day | pH | PO2 | PCO2 | FiO2 | HCO3 | BE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | K | Normal | Good | Good | Warm | 2 | 2 | 1 | 3 | RL | 100.2 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | N | NA | N | N | 0 | NA | NA | 3.2 | 6.6 | 7.42 | 119 | 43 | 30 | 27 | 3.4 |
| 50 | TS | Hypotension | Good | Poor | Cool | 2 | 1 | 4 | 0.5 | RL | 100 | Cyanosis | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 24.2 | 9.3 | 7.21 | 103 | 62 | 50 | 22.5 | -0.31 |
| 51 | RPS | Normal | Good | Good | Warm | 4 | 5 | 6 | 2 | RL | 101 | Pallor | Respiratory | Y | N | NA | NA | N | N | NA | N | Y | 0 | NA | NA | 2.6 | -3.1 | 7.45 | 68 | 37 | 40 | 26.3 | 1.7 |
| 52 | KK | Normal | Good | Good | Warm | 4 | 5 | 1 | 2 | RL | 100.4 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | N | NA | Y | N | 0 | NA | NA | -6.1 | 13.6 | 7.3 | 86 | 53 | 40 | 26.1 | -0.3 |
| 53 | TK | Hypotension | Good | Poor | Warm | 4 | 3 | 5 | 3 | RL | 104 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Norepinephrine | Y | Y | 2 | 10 | NS | 12 | 6.8 | 7.3 | 122 | 37 | 100 | 23.3 | -2.6 |
| 54 | A | Normal | Good | Good | Warm | 2 | 2 | 4 | 3 | RL | 101.5 | Pallor | Endocrinology | Y | Y | Invasive | Extrapulmonary | N | N | NA | N | Y | 1 | 10 | NS | 6.8 | 170 | 6.8 | 40 | 12 | 60 | Unrecordable | Unrecordable |
| 55 | V | Normal | Good | Poor | Cool | 2 | 2 | 4 | 2 | RL | 99.2 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 9.64 | 21.6 | 7.45 | 78 | 39 | 100 | 27.2 | 3.1 |
| 56 | M | Normal | Good | Poor | Cool | 1 | 1 | 4 | 3 | RL | 101.3 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 20 | NS | 26.6 | 13.86 | 7.12 | 68 | 49 | 100 | 18.4 | -11.3 |
| 57 | G | Normal | Good | Good | Warm | 3 | 3 | 5 | 2 | RL | 100.6 | Pallor | CVS | Y | Y | Invasive | Pulmonary | N | Y | Dobutamine | Y | N | 0 | NA | NA | 26.1 | 32.3 | 7.31 | 46 | 40 | 100 | 22.6 | -6.2 |
| 58 | JS | Normal | Good | Good | Warm | 3 | 3 | 4 | 2 | RL | 101.2 | Pallor | CNS | N | Y | Invasive | Extrapulmonary | N | N | NA | N | N | 0 | NA | NA | -2.1 | -4.8 | 7.38 | 54 | 38 | 21 | 22.8 | -3.6 |
| 59 | A | Normal | Good | Good | Cool | 3 | 3 | 5 | 2 | RL | 102.3 | Pallor | GIT | Y | Y | Non invasive | NA | Y | N | NA | N | Y | 0 | NA | NA | 0.14 | 20.5 | 7.37 | 90 | 25 | 60 | 14.5 | -10.8 |
| 60 | MS | Normal | Good | Good | Warm | 4 | 5 | 6 | 2 | RL | 99.6 | Pallor | Musculoskeletal | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 11.63 | -11.3 | 7.44 | 90 | 35 | 40 | 23.8 | -0.4 |
| 61 | A | Hypotension | Poor | Poor | Cool | 3 | 3 | 4 | 2 | RL | 99.4 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine | Y | Y | 2 | 10 | NS | -20.5 | -11.3 | 7.34 | 40 | 26 | 100 | 14 | -11.8 |
| 62 | S | Hypotension | Poor | Poor | Cool | 1 | 1 | 4 | 3 | RL | 101.8 | Cyanosis | GIT | Y | Y | Invasive | Extrapulmonary | N | Y | Epinephrine , Norepinephrine | Y | Y | 3 | 20 | NS | 11.2 | 51 | 7.15 | 73 | 23 | 100 | 8 | -20.4 |
| 63 | R | Hypotension | Good | Poor | Cool | 3 | 2 | 4 | 2 | RL | 97 | Pallor | GIT | Y | N | NA | NA | N | Y | Dopamine, Dobutamine | Y | Y | 3 | 20 | NS | 91.8 | 12.2 | 7.01 | 44 | 28 | 100 | 12.1 | -20.3 |
| 64 | A | Normal | Good | Good | Cool | 4 | 5 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 20 | NS | 10.2 | 22.8 | 7.24 | 56 | 38 | 100 | 18.3 | -11.4 |
| 65 | S | Hypotension | Poor | Poor | Cool | 1 | 1 | 4 | 3 | RL | 105.8 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | Y | Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 14.8 | 26.6 | 7.12 | 82 | 48 | 100 | 11.3 | -10.4 |
| 66 | A | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 101 | Icterus | GIT | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Norepinephrine | Y | Y | 1 | 10 | NS | 11.5 | 6.26 | 7.16 | 43 | 47 | 40 | 16 | -11.9 |
| 67 | A | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Epinephrine | Y | Y | 2 | 10 | NS | 2.44 | -19.8 | 7.38 | 377 | 32 | 21 | 18.9 | -6.2 |
| 68 | ES | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 98 | Normal | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dobutamine | Y | N | 0 | NA | NA | 15.17 | -22.07 | 7.31 | 55 | 33 | 100 | 17.9 | -9.7 |
| 69 | R | Hypotension | Good | Poor | Cool | 4 | 1 | 5 | 3 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 2 | 20 | NS | 14.6 | 12.3 | 7.06 | 68 | 48 | 100 | 17.3 | -9.8 |
| 70 | PG | Hypotension | Good | Poor | Cool | 3 | 4 | 5 | 2 | RL | 103 | Pallor | GIT | Y | N | NA | NA | N | Y | Dopamine | N | Y | 1 | 20 | NS | 7.07 | 5.21 | 7.38 | 49 | 27 | 40 | 18.5 | -9.1 |
| 71 | H | Normal | Good | Good | Cool | 3 | 4 | 5 | 2 | RL | 100.6 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | N | NA | N | Y | 1 | 10 | NA | 2.4 | -20 | 7.35 | 30 | 42 | 40 | 22 | -2.4 |
| 72 | MK | Normal | Good | Good | Cool | 4 | 1 | 4 | 2 | RL | 99.8 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | Y | Dobutamine | N | N | 0 | NA | NA | -1.75 | -15.78 | 7.37 | 40 | 50 | 21 | 28.9 | 3.6 |
| 73 | JV | Normal | Good | Good | Warm | 2 | 1 | 4 | 3 | RL | 101 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | N | NA | N | N | 0 | NA | NA | 11.2 | 5.6 | 7.28 | 46 | 62 | 40 | 22.3 | -6.4 |
| 74 | RD | Normal | Good | Good | Warm | 3 | 3 | 5 | 2 | RL | 99.6 | Pallor | CNS | Y | Y | Non invasive | Extrapulmonary | Y | N | NA | Y | Y | 2 | 20 | NS | -33 | -21.04 | 7.36 | 33 | 37 | 40 | 21.2 | -4.5 |
| 75 | A | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 100.1 | Normal | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Norepinephrine | Y | Y | 3 | 20 | NS | 24.64 | 10.23 | 7.36 | 60 | 42 | 40 | 22.3 | -6.2 |
| 76 | NJ | Normal | Good | Good | Warm | 2 | 3 | 4 | 3 | RL | 101.2 | Icterus | GIT | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 14.46 | -5.24 | 7.48 | 68 | 30 | 40 | 28 | -8.21 |
| 77 | P | Hypotension | Good | Poor | Cool | 3 | 4 | 5 | 2 | RL | 101.9 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Epinephrine | N | Y | 2 | 10 | NS | 31.4 | 11.5 | 7.20 | 54 | 28 | 100 | 22.4 | -10.3 |
| 78 | P | Normal | Good | Good | Warm | 2 | 3 | 4 | 2 | RL | 99 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | Y | N | NA | N | N | 0 | NA | NA | 6.9 | 13.15 | 7.43 | 52 | 40 | 40 | 26.3 | 2.2 |
| 79 | L | Normal | Good | Good | Warm | 4 | 4 | 6 | 2 | RL | 101 | Normal | Respiratory | Y | Y | Non invasive | NA | Y | N | NA | N | N | 0 | NA | NA | 35.15 | 89.8 | 7.32 | 39 | 51 | 40 | 24.5 | 0.2 |
| 80 | N | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 100 | Icterus | GIT | Y | Y | Non invasive | NA | Y | Y | Dobutamine, Epinephrine | N | Y | 1 | 20 | NS | 12.8 | 9.3 | 7.44 | 87 | 29 | 100 | 22 | -4.5 |
| 81 | G | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 2 | RL | 99.4 | Icterus | Musculoskeletal | Y | Y | Non invasive | NA | Y | Y | Dopamine, Norepinephrine | Y | Y | 2 | 10 | NS | 22.6 | 15.21 | 7.37 | 77 | 29 | 40 | 16.8 | -8.5 |
| 82 | G | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 2 | RL | 100 | Pallor | Respiratory | Y | Y | Non invasive | Pulmonary | Y | Y | Norepinephrine | Y | Y | 2 | 10 | NS | 36.13 | 22.14 | 7.29 | 39 | 34 | 100 | 16.3 | -10.3 |
| 83 | A | Hypotension | Good | Poor | Cool | 3 | 4 | 4 | 2 | RL | 101.2 | Pallor | Musculoskeletal | Y | Y | Non invasive | NA | Y | Y | Norepinephrine | Y | Y | 3 | 20 | NS | 18.2 | 9.8 | 7.35 | 158 | 28 | 100 | 15.5 | -10.1 |
| 84 | A | Hypotension | Good | Poor | Cool | 4 | 5 | 5 | 2 | RL | 98.4 | Pallor | CVS | Y | Y | Non invasive | NA | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepiphrine | Y | N | 2 | 10 | NS | 12.51 | 8.23 | 7.29 | 68 | 24 | 100 | 18 | -15.21 |
| 85 | N | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 99.2 | Pallor | CVS | Y | Y | Invasive | Pulmonary | Y | Y | Dobutamine, Norepinephrine | Y | Y | 1 | 10 | NS | 10.58 | 8.24 | 7.30 | 48 | 42 | 40 | 18.2 | -12.5 |
| 86 | S | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 3 | RL | 100.2 | Pallor | CVS | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 10.2 | 6.7 | 7.33 | 41 | 20 | 100 | 14.3 | -15.4 |
| 87 | HB | Hypotension | Good | Poor | Cool | 4 | 5 | 6 | 2 | RL | 99.6 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dobutamine, Norepinephribne | Y | Y | 2 | 20 | Colloid | 18.21 | 15.6 | 7.33 | 162 | 44 | 100 | 21.4 | -11 |
| 88 | S | Hypotension | Good | Poor | Cool | 3 | 4 | 5 | 2 | RL | 100.2 | Normal | CNS | Y | Y | Non invasive | NA | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS, colloid | 21.22 | 18.46 | 7.31 | 58 | 48 | 100 | 21.3 | -9.8 |
| 89 | A | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 98.2 | Normal | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Epinephrine | N | Y | 3 | 20 | NS,Colloid | 18.24 | 11.1 | 7.12 | 62 | 44 | 35 | -21.3 | -8.9 |
| 90 | V | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Epinephrine | Y | Y | 1 | 10 | NS | 17.1 | -5.2 | 7.21 | 54 | 48 | 100 | 18.3 | -11 |
| 91 | RS | Normal | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 103.5 | Pallor | Musculoskeletal | Y | N | NA | NA | N | Y | Norepinephrine | N | Y | 2 | 20 | NS | 10.5 | 5.24 | 7.22 | 48 | 34 | 35 | 21.3 | -11.3 |
| 92 | MS | Hypotension | Poor | Poor | Cool | 3 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 2 | 10 | NS | 15.93 | 9.93 | 7.12 | 64 | 52 | 100 | -18.3 | -11.4 |
| 93 | P | Normal | Good | Good | Warm | 2 | 3 | 4 | 2 | RL | 101.6 | Icterus | GIT | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | -5.23 | 2.14 | 7.28 | 68 | 42 | 30 | 12.3 | -5.8 |

| S. No. | Initial Name | Hb | TLC | DLC | TSB | DSB | Platelets | LDH | Na | K | BU | CR | OT | PT | Lactate | CRP | RBS | Vit. D | CPK-MB | Prism Score | 1 (<24 hrs) Respiratory | 1 (<24 hrs) Coagulation | 1 (<24 hrs) Liver | 1 (<24 hrs) CVH | 1 (<24 hrs) CNS | 1 (<24 hrs) Renal System | 1 (<24 hrs) Total | Day Respiratory | Day_ Coagulation | Day_ Liver | Day_ CVH | Day_ CNS | Day_ Renal System | Day_ Total | SOFA Score_Resp. rate | SOFA Score GCS | SOFA Score_SBP | SOFA Score Total | Duration of Stay | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | K | 9.4 | 47.2 | 26.8/65.6 | 0.43 | 0.24 | 350 | NA | 137 | 3.9 | 45 | 0.37 | 29 | 19 | 1.6 | 15.4 | 152 | 15.5 | NA | 18 | 2 | 0 | 0 | 0 | 4 | 0 | 6 | 1 | 0 | 0 | 2 | 2 | 0 | 5 | 1 | 1 | 0 | 2 | 6 | DAMA |
| 50 | TS | 8.7 | 9.7 | 53.5/34 | 0.54 | 0.28 | 269 | NA | 137 | 5.3 | 18 | 0.24 | 80 | 27 | 3.7 | 12 | 79 | 23.14 | NA | 9 | 2 | 0 | 0 | 4 | 3 | 0 | 9 | 2 | 0 | 0 | 0 | 3 | 0 | 5 | 1 | 1 | 1 | 3 | 11 | Shifted |
| 51 | RPS | 10.9 | 28.1 | 79.9/11.5 | 0.41 | 0.25 | 1276 | NA | 135 | 5.6 | 19 | 0.31 | 27 | 21 | 1.6 | 235.4 | 101 | 10 | NA | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | Shifted |
| 52 | KK | 10.1 | 9.1 | 76/15 | 0.67 | 0.48 | 205 | NA | 140 | 4.36 | 41 | 0.53 | 43 | 38 | 1 | 0.21 | 101 | 45.6 | NA | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 4 | 0 | 5 | 1 | 1 | 0 | 2 | 5 | Shifted |
| 53 | TK | 11.8 | 12.2 | 72.9/20.6 | 1.32 | 0.98 | 256 | 512 | 137 | 4.47 | 14 | 0.26 | 104 | 46 | 1.5 | 52.8 | 102 | 8.83 | NA | 11 | 4 | 0 | 1 | 4 | 1 | 0 | 10 | 3 | 0 | 1 | 2 | 3 | 0 | 9 | 1 | 1 | 1 | 3 | 7 | DAMA |
| 54 | A | 13 | 11 | 73.9/20.1 | 0.65 | 0.42 | 303 | NA | 135 | 5.16 | 31 | 0.93 | 26 | 19 | 0.9 | 2.3 | >500 | 2.56 | NA | 16 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 6 | 1 | 1 | 0 | 2 | 3 | Shifted |
| 55 | V | 11.8 | 5.5 | 64/25 | 1.1 | 0.73 | 222 | NA | 140 | 3.53 | 9 | 0.27 | 36 | 10 | 1.6 | 9.4 | 84 | 8.48 | NA | 12 | 4 | 0 | 0 | 4 | 3 | 0 | 11 | 3 | 1 | 1 | 4 | 4 | 0 | 13 | 1 | 1 | 1 | 3 | 4 | Died |
| 56 | M | 9.9 | 44 | 76.9/18.9/1.7/0.4 | 0.67 | 0.51 | 210 | 1201 | 149 | 7.48 | 237 | 7.71 | 43 | 3 | 7.2 | 91.2 | 104 | 16.7 | 21 | 30 | 4 | 0 | 0 | 4 | 4 | 4 | 16 | 4 | 2 | 0 | 4 | 4 | 4 | 18 | 1 | 1 | 1 | 3 | 2 | Died |
| 57 | G | 9.6 | 7.1 | 58/36 | 0.87 | 0.45 | 336 | 624 | 140 | 5.89 | 23 | 6.32 | 58 | 62 | 3.4 | 226.7 | 84 | 2.8 | 221 | 18 | 4 | 0 | 0 | 2 | 2 | 0 | 8 | 4 | 0 | 0 | 2 | 4 | 0 | 10 | 1 | 1 | 0 | 2 | 2 | Died |
| 58 | JS | 12.8 | 9.3 | 42/47 | 0.22 | 0.18 | 457 | NA | 140 | 5.04 | 24 | 0.28 | 16 | 31 | 2.8 | 16 | 90 | 32.4 | NA | 6 | 2 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 59 | A | 5.2 | 8.6 | 54/36 | 0.24 | 0.16 | 456 | 1609 | 135 | 4.89 | 185 | 4.12 | 100 | 24 | 1.4 | 50.89 | 92 | 8.46 | NA | 5 | 2 | 0 | 0 | 1 | 2 | 3 | 8 | 1 | 0 | 0 | 0 | 0 | 4 | 5 | 1 | 1 | 0 | 2 | 6 | Shifted |
| 60 | MS | 7.4 | 10.7 | 73.9/11.6 | 0.46 | 0.23 | 387 | NA | 134 | 4.92 | 17 | 0.31 | 23 | 13 | 1 | 125.16 | 99 | 11.32 | 132 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 11 | Shifted |
| 61 | A | 7.8 | 8.9 | 93.9/2.2 | 0.28 | 0.19 | 99 | NA | 137 | 3.6 | 40 | 0.75 | 186 | 89 | 3 | 242.9 | 83 | 5.6 | 89 | 12 | 4 | 2 | 0 | 3 | 2 | 0 | 11 | 3 | 2 | 0 | 1 | 1 | 0 | 7 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 62 | S | 8.8 | 13 | 72.8/18 | 0.15 | 0.07 | 224 | NA | 187 | 1.64 | 167 | 1.08 | 39 | 36 | 7.2 | 136 | 364 | 8.68 | NA | 22 | 4 | 0 | 0 | 4 | 4 | 0 | 12 | 4 | 2 | 1 | 4 | 4 | 1 | 16 | 1 | 1 | 1 | 3 | 5 | Died |
| 63 | R | 10.4 | 10.6 | 72.5/16.9 | 0.82 | 0.63 | 549 | NA | 127 | 3.69 | 44 | 0.53 | 94 | 44 | 5.6 | 339.27 | 86 | 13.2 | NA | 15 | 4 | 0 | 0 | 3 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 64 | A | 7.7 | 39 | 88.2/10.1 | 1.24 | 1.16 | 184 | 516 | 134 | 3.4 | 48 | 1.28 | 86 | 84 | 4.8 | 554 | 184 | 19.8 | NA | 38 | 1 | 0 | 1 | 2 | 1 | 1 | 6 | 4 | 2 | 2 | 4 | 4 | 2 | 18 | 1 | 1 | 1 | 3 | 3 | Died |
| 65 | S | 9.6 | 2100 | 62.4 / 28.8 | 3.72 | 3.05 | 278 | NA | 147 | 6.6 | 72 | 1.69 | 14621 | 8276 | 5.4 | 82.4 | 124 | 1.26 | 103 | 27 | 4 | 0 | 2 | 2 | 4 | 2 | 14 | 4 | 0 | 2 | 4 | 4 | 1 | 15 | 1 | 1 | 1 | 3 | 2 | Died |
| 66 | A | 6.3 | 28 | 84/26 | 35.4 | 25.5 | 48 | 112 | 130 | 5.82 | 170 | 1.53 | 61 | 20 | 5.2 | 118 | 240 | 21 | NA | 15 | 2 | 2 | 4 | 4 | 1 | 1 | 14 | 3 | 4 | 4 | 4 | 4 | 1 | 20 | 1 | 1 | 0 | 2 | 15 | Died |
| 67 | A | 9.3 | 5.9 | 49.5/40.1 | 0.58 | 0.32 | 159 | NA | 139 | 2.98 | 17 | 0.16 | 71 | 34 | 1.2 | 212.9 | 175 | 14.78 | 156 | 16 | 4 | 0 | 0 | 3 | 1 | 0 | 8 | 3 | 1 | 0 | 2 | 3 | 0 | 9 | 1 | 1 | 1 | 3 | 12 | Shifted |
| 68 | ES | 10.5 | 21.2 | 16/82 | 0.23 | 0.17 | 621 | NA | 138 | 7.09 | 17 | 0.35 | 27 | 18 | 5.7 | 0.1 | 145 | 117.76 | NA | 16 | 4 | 0 | 0 | 2 | 1 | 0 | 7 | 3 | 0 | 0 | 0 | 2 | 0 | 5 | 1 | 1 | 0 | 2 | 14 | Shifted |
| 69 | R | 9.8 | 20.8 | 88.2/ 10 | 0.35 | 0.23 | 64 | 214 | 132 | 2.1 | 121 | 1.61 | 256 | 168 | 4.5 | 178 | 56 | 1.09 | NA | 28 | 4 | 3 | 1 | 3 | 2 | 1 | 14 | 3 | 2 | 0 | 2 | 2 | 1 | 10 | 1 | 1 | 1 | 3 | 18 | Shifted |
| 70 | PG | 11.1 | 11.2 | 34.7/55.8 | 0.61 | 0.32 | 507 | NA | 143 | 4.26 | 5 | 0.26 | 96 | 102 | 1.8 | 3.09 | 75 | 20.49 | NA | 8 | 2 | 0 | 0 | 2 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 71 | H | 12.4 | 7.1 | 83.5/11.9 | 1.18 | 0.85 | 195 | 699 | 137 | 4.24 | 29 | 0.66 | 331 | 177 | 3 | 215.2 | 109 | 49.99 | NA | 15 | 4 | 0 | 0 | 1 | 2 | 0 | 7 | 3 | 2 | 1 | 2 | 1 | 0 | 9 | 1 | 1 | 0 | 2 | 12 | Shifted |
| 72 | MK | 12.2 | 12.1 | 83/7.6 | 0.97 | 0.64 | 268 | NA | 134 | 4.16 | 19 | 0.54 | 16 | 11 | 1.3 | 0.47 | 149 | 11.2 | NA | 16 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 3 | 0 | 0 | 2 | 3 | 0 | 8 | 1 | 1 | 0 | 2 | 30 | Died |
| 73 | JV | 14.6 | 12.2 | 14.6/ 82.2 | 0.39 | 0.17 | 242 | NA | 136 | 4.2 | 42 | 0.62 | 56 | 48 | 1.2 | 12 | 68 | 18 | NA | 16 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 3 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 1 | 0 | 1 | 32 | Shifted |
| 74 | RD | 8.1 | 17.5 | 65/27 | 0.45 | 0.28 | 150 | NA | 134 | 4.5 | 21 | 0.24 | 106 | 54 | 3.5 | 75.64 | 110 | 15.4 | NA | 8 | 1 | 1 | 0 | 1 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 75 | A | 9.6 | 12.4 | 66/28 | 0.32 | 0.21 | 96 | NA | 136 | 3.9 | 28 | 0.21 | 100 | 72 | 2.1 | 28.42 | 101 | 4 | NA | 8 | 2 | 2 | 0 | 3 | 1 | 0 | 8 | 0 | 3 | 0 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 3 | 5 | Shifted |
| 76 | NJ | 8.4 | 11.1 | 65/24 | 18.6 | 16.3 | 101 | NA | 131 | 4.1 | 40 | 0.91 | 2335 | 1624 | 2.5 | 224 | 225 | 24 | NA | 15 | 2 | 1 | 4 | 0 | 3 | 0 | 10 | 1 | 2 | 4 | 0 | 1 | 1 | 9 | 1 | 1 | 0 | 1 | 5 | Shifted |
| 77 | P | 10.2 | 15.3 | 78.1/21 | 0.64 | 0.42 | 52 | NA | 130 | 3.9 | 41 | 0.53 | 92 | 78 | 4.1 | 16.7 | 201 | 10.4 | NA | 14 | 4 | 3 | 0 | 4 | 2 | 0 | 13 | 2 | 3 | 0 | 2 | 1 | 0 | 8 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 78 | P | 7.8 | 19.9 | 65.6/34.8 | 0.23 | 0.14 | 28 | NA | 140 | 5.4 | 14 | 0.39 | 24 | 18 | 2.8 | 8.27 | 88 | 6.41 | 132 | 12 | 1 | 3 | 0 | 0 | 3 | 0 | 7 | 3 | 3 | 0 | 0 | 4 | 0 | 10 | 1 | 1 | 0 | 2 | 7 | Shifted |
| 79 | L | 8.1 | 8.5 | 45/50 | 0.16 | 0.1 | 496 | NA | 140 | 5.37 | 10 | 0.24 | 32 | 41 | 2.4 | 6.77 | 68 | 24.8 | 32 | 17 | 3 | 0 | 0 | 0 | 1 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 2 | 3 | Shifted |
| 80 | N | 7.5 | 10.1 | 31.7/63.7 | 5.2 | 0.38 | 60 | NA | 148 | 3.7 | 13 | 0.2 | 197 | 158 | 2.4 | 48.8 | 62 | 28 | NA | 21 | 4 | 2 | 2 | 4 | 1 | 0 | 13 | 0 | 2 | 2 | 0 | 1 | 0 | 5 | 1 | 1 | 0 | 2 | 5 | Shifted |
| 81 | G | 6.7 | 27.3 | 85/10 | 3.2 | 1.8 | 38 | NA | 133 | 4.25 | 26 | 0.28 | 45 | 38 | 2.2 | 288.59 | 67 | 8.08 | 584 | 28 | 2 | 3 | 2 | 4 | 1 | 0 | 12 | 1 | 3 | 2 | 2 | 1 | 0 | 9 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 82 | G | 10.1 | 7.3 | 80.2/13.6 | 0.76 | 0.43 | 205 | NA | 125 | 4.81 | 19 | 0.2 | 196 | 68 | 6.6 | 244.9 | 59 | 28.2 | 680 | 9 | 4 | 0 | 0 | 3 | 3 | 0 | 10 | 2 | 3 | 2 | 4 | 2 | 0 | 13 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 83 | A | 6.5 | 26.4 | 88.5/4.7 | 4.3 | 2.4 | 130 | NA | 131 | 3.87 | 115 | 1.27 | 89 | 48 | 2.9 | 315 | 40 | 28.8 | 3857 | 18 | 3 | 1 | 2 | 4 | 2 | 1 | 13 | 2 | 2 | 2 | 1 | 1 | 2 | 10 | 1 | 1 | 1 | 3 | 7 | Shifted |
| 84 | A | 12.1 | 22.3 | 80/18 | 2.3 | 1.18 | 256 | NA | 138 | 4.1 | 38 | 0.53 | 785 | 446 | 4.1 | 321 | 78 | 5.6 | 1232 | 4 | 3 | 0 | 2 | 4 | 1 | 0 | 10 | 4 | 0 | 2 | 3 | 4 | 0 | 13 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 85 | N | 8.4 | 8.6 | 54.1/35.3 | 0.14 | 0.1 | 440 | NA | 136 | 4.1 | 42 | 0.73 | 80 | 40 | 3.5 | 251 | 84 | 12.1 | 964 | 4 | 3 | 0 | 0 | 4 | 1 | 0 | 8 | 4 | 0 | 0 | 4 | 4 | 0 | 12 | 1 | 1 | 1 | 3 | 2 | Died |
| 86 | S | 10.4 | 29.4 | 86/12 | 0.51 | 0.32 | 35 | NA | 132 | 3.9 | 44 | 0.24 | 46 | 39 | 5.1 | 15.41 | 156 | 35 | NA | 11 | 4 | 3 | 0 | 4 | 3 | 0 | 14 | 4 | 4 | 0 | 4 | 4 | 0 | 16 | 1 | 1 | 1 | 3 | 2 | Died |
| 87 | HB | 10.1 | 4.1 | 71/23 | 1.1 | 0.87 | 20 | NA | 136 | 3.4 | 38 | 0.53 | 78 | 79 | 2.5 | 14.15 | 220 | 21.5 | NA | 9 | 3 | 4 | 0 | 4 | 1 | 0 | 12 | 1 | 3 | 0 | 2 | 1 | 0 | 7 | 1 | 0 | 1 | 2 | 2 | Shifted |
| 88 | S | 12.2 | 2.3 | 64/ 19.8 | 0.82 | 0.63 | 21 | 352 | 143 | 3.2 | 48 | 0.81 | 231 | 162 | 4.2 | 48.8 | 82 | 13.4 | NA | 14 | 3 | 3 | 0 | 4 | 2 | 0 | 12 | 4 | 4 | 1 | 4 | 4 | 1 | 13 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 89 | A | 11.6 | 3.2 | 72.5/ 26 | 1.1 | 0.78 | 48 | NA | 141 | 4.3 | 32 | 0.32 | 324 | 265 | 3.4 | 18.9 | 112 | 42 | NA | 15 | 3 | 3 | 0 | 3 | 2 | 0 | 11 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 90 | V | 9.8 | 5.6 | 70.2/ 28.9 | 0.79 | 0.43 | 18 | 512 | 138 | 5.1 | 42 | 0.51 | 333 | 145 | 4.6 | 154 | 121 | 16.1 | NA | 4 | 2 | 4 | 0 | 2 | 1 | 1 | 10 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 2 | 4 | Shifted |
| 91 | RS | 9.2/28.9 | 39.6 | 88/5.3 | 0.45 | 0.21 | 211 | NA | 133 | 3.21 | 23 | 0.39 | 25 | 9 | 2.4 | 99.51 | 92 | 10.23 | NA | 2 | 1 | 0 | 0 | 4 | 1 | 0 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 1 | 1 | 3 | 2 | Shifted |
| 92 | MS | 10.3 | 6.3 | 38.3/47.9 | 1.23 | 0.71 | 52 | NA | 133 | 4.54 | 71 | 0.79 | 361 | 112 | 5.6 | 301.6 | 84 | 10.23 | NA | 17 | 4 | 2 | 1 | 4 | 2 | 0 | 13 | 4 | 4 | 1 | 4 | 4 | 1 | 18 | 1 | 1 | 1 | 3 | 3 | Died |
| 93 | P | 13.2 | 11.2 | 70.2/19.1 | 8.09 | 6.666 | 338 | NA | 137 | 4.66 | 25 | 54 | 1005 | 1592 | 2.5 | 0.61 | 108 | 12.65 | NA | 13 | 0 | 0 | 3 | 0 | 3 | 0 | 6 | 0 | 1 | 4 | 0 | 2 | 0 | 7 | 1 | 1 | 0 | 2 | 4 | Shifted |

| S. No. | Initial Name | DOA | Age (Mths) | Sex | MDR No. | Main Diagnosis | Weight Actual | Weight Expected | Height Actual | Height Expected | BMI Actual | BMI Expected | Airway | RR | RR Interpretation | Efforts | A/E | Auscultation | SPO2 | HR | HR Interpretation | Rhythm | CFT | SBP | DBP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | SC | 10-06-2019 | 72 | M | 657764 | Severe dengue with hypotensive shock with coagulopathy with bilateral pleural effusion with ascitis with respiraotry failure with acude kidney injury | 20 | 19.3 | 114 | 114.8 | 15.38 | 14.9 | Open & Unstable | 38 | Tachypnea | Increased | Differential | Crackles | 90 | 125 | Tachycardia | Sinus | 3 | 56 | 38 |
| 95 | PS | 10-07-2019 | 168 | M | 824532 | Acute viral Hepatitis-A with Hepatic encephalopathy Grade-II with coagulaopathy | 32 | 48.2 | 148 | 159.9 | 14.61 | 18.7 | Open & Stable | 18 | Normal | Normal | Normal | None | 96 | 118 | Tachycardia | Sinus | 2 | 110 | 70 |
| 96 | S | 10-08-2019 | 192 | F | 825471 | Severe dengue fever with hypotensive shock with respiratory failure with pulmonary hemorrhage wih dengue encepnalopathy | 50 | 56.8 | 147 | 168.1 | 23.15 | 19.9 | Open & Unstable | 38 | Tachypnea | Acidotic | Differential | Crackles | 76 | 132 | Tachycardia | Sinus | >5 | 62 | 46 |
| 97 | A | 10-12-2019 | 60 | M | 828179 | Severe dengue fever with respiratory failure with hypotensive shock with coagulopathy with bilateral pleural effusion | 16 | 18.2 | 109 | 11.9 | 13.44 | 14.8 | Obstructed | Gasping | Bradypnea | Acidotic | Differential | Crackles | 68 | 148 | Tachycardia | Sinus | >5 | 56 | 38 |
| 98 | H | 13/10/2019 | 2 | M | 828802 | Acute meningochcephalitis with severe Iron deficiency anemia | 5.5 | 5.6 | 60 | 58.4 | 41 | 39.1 | Open & Stable | 42 | Normal | Normal | Normal | None | 96 | 128 | Normal | Sinus | 2 | 60 | 40 |
| 99 | T | 10-11-2019 | 168 | F | 827389 | Tubercular meningitis with respiratory distress with failure to thrive | 30 | 46.4 | 142 | 154.7 | 14.92 | 19.4 | Open & Unstable | 32 | Tachypnea | Normal | Normal | Crackles | 92 | 124 | Tachycardia | Sinus | 2 | 108 | 64 |
| 100 | AK | 14/10/2019 | 72 | F | 829130 | Left gluteal abcess with toxic shock syndrome with septic shock with respiratory failure with acute bronchopneumonia with acute kidney injury | 15 | 18.5 | 109 | 113.5 | 12.6 | 14.5 | Open & Unstable | 54 | Tachypnea | Increased | Differential | Crackles | 82 | 148 | Tachycardia | Sinus | 4 | 62 | 46 |
| 101 | SS | 15/10/2019 | 120 | M | 929489 | Severe dengue with hypotensive shock with respiratory distress with epistaxis with bitaleral pleural effusion | 26 | 31.1 | 138 | 137.2 | 13.68 | 16.4 | Open & Unstable | 44 | Tachypnea | Increased | Normal | Crackles | 86 | 136 | Tachycardia | Sinus | 4 | 88 | 48 |
| 102 | D | 17/10/2019 | 8 | M | 812312 | Left side Pelvic ureteric junction-obstruction with pyonephrosis with sepsis with acute bronchopneumonia | 7.5 | 8.6 | 71 | 70.6 | 45 | 44.5 | Open & Unstable | 68 | Tachypnea | Acidotic | Normal | None | 92 | 186 | Tachycardia | Sinus | 2 | 68 | 46 |
| 103 | DS | 18/10/2019 | 168 | M | 831714 | Severe dengue with hypotensive shock with respiratory failure with epistaxis with hepatitis | 82 | 48.2 | 166 | 159.9 | 29.82 | 18.7 | Open & Unstable | 36 | Tachypnea | Increased | Normal | Crackles | 92 | 122 | Tachycardia | Sinus | >5 | 48 | 24 |
| 104 | RP | 22/10/2019 | 144 | M | 644971 | Left iliac abcess with sepsis with sepic shock with respiratory distress with thrombocytopenia | 34 | 39 | 152 | 148.4 | 14.8 | 17.7 | Open & Unstable | 28 | Tachypnea | Increased | Normal | None | 90 | 124 | Tachycardia | Sinus | 3 | 84 | 50 |
| 105 | R | 23/10/2019 | 168 | M | 835367 | Severe dengue with dengue assocaitd encephalopathy with hypotensive shock with bilateral pleural effusion with ascitis | 35 | 50.8 | 140 | 162.3 | 17.8 | 19 | Open & Unstable | 36 | Tachypnea | Increased | Normal | Crackles | 86 | 132 | Tachycardia | Sinus | 3 | 64 | 40 |
| 106 | R | 24/10/2019 | 144 | F | 834802 | Severe dengue with hypotensive shock with respiratory distress with pleural effusion with coagulapathy | 40 | 39.8 | 151 | 148.4 | 17.54 | 18 | Open & Unstable | 42 | Tachypnea | Increased | Normal | None | 84 | 132 | Tachycardia | Sinus | 4 | 68 | 46 |
| 107 | AK | 24/10/2019 | 11 | F | 835542 | Left gluteal abscess with sepsis with septic shock with respiratory failure with coagulapathy | 6.5 | 9.4 | 70 | 74.5 | 45 | 45.8 | Open & Unstable | 68 | Tachypnea | Increased | Normal | None | 88 | 156 | Normal | Sinus | 3 | 50 | 36 |
| 108 | M | 24/10/2019 | 192 | F | 835653 | Klclo cerebral palsy with acute bronchopneumia with acute respiratory distress syndrome with respiratory failure with sepsis with septic shock | 21 | 56.8 | 132 | 157 | 12.1 | 20.3 | Open & Unstable | 32 | Tachypnea | Increased | Differential | Wheeze | 89 | 118 | Tachycardia | Sinus | 3 | 90 | 56 |
| 109 | IK | 24/10/2019 | 120 | F | 836141 | Intestinal obstruction with sepic ileus with hypotensive shock with perforation peritonitis with acute kidney injury | 25 | 31 | 137.4 | 135 | 13.4 | 16.5 | Open & Unstable | 28 | Tachypnea | Normal | Normal | None | 94 | 118 | Tachycardia | Sinus | 3 | 84 | 42 |
| 110 | A | 25/10/2019 | 120 | F | 835324 | Severe dengue with hypotensive shock with dengue associated enceplalopethy with bilateral pleural effusion with respiratory failure | 41 | 31 | 138 | 137.4 | 21.58 | 16.5 | Open & Stable | 21 | Normal | Increased | Normal | None | 94 | 94 | Normal | Sinus | 3 | 68 | 46 |
| 111 | GB | 26/11/2019 | 144 | F | 838733 | Severe dengue with hypotensive shock with respiratory failure with bilateral significant pleural effusion with coagulapathy with pulmonary hemorrhage | 60 | 39.8 | 156 | 148.4 | 21.7 | 18 | Open & Stable | On Bains | Bradypnea | NA | Differential | Crackles | 82 | 129 | Tachycardia | Sinus | >5 | 48 | 32 |
| 112 | A | 30/10/2019 | 6 | F | 838744 | Acute bronchiolitis with respiratory distress with myocarditis with cardiogenic shock with dilated cardiomyopathy | 7 | 7.9 | 66 | 68.6 | 44 | 43.3 | Open & Unstable | 78 | Tachypnea | Increased | Differential | Wheeze | 90 | 182 | Tachycardia | Sinus | 3 | 86 | 48 |
| 113 | Z | 11-03-2019 | 10 | M | 839875 | Right anterior chest wall cellulitis with myostis with sepsis with acute bronchopneumonia with respiratory distress | 9 | 9.2 | 75 | 73.3 | 45 | 45.4 | Open & Stable | 68 | Tachypnea | Increased | Differential | None | 96 | 138 | Normal | Sinus | 3 | 72 | 46 |
| 114 | T | 11-04-2019 | 180 | M | 841974 | Acute viral hepatitis-A with hepatic encephalopathy stage III with coagulapathy | 50 | 53.1 | 164 | 164.5 | 18.58 | 19.3 | Open & Stable | 18 | Normal | Normal | Normal | None | 98 | 92 | Normal | Sinus | 2 | 118 | 64 |
| 115 | AK | 11-04-2019 | 72 | F | 842638 | Severe dengue with hypotensive shock with polyserositis with respiratory distress | 30 | 19.9 | 125 | 116.5 | 19.23 | 14.7 | Open & Unstable | 34 | Tachypnea | Increased | Differential | Crackles | 86 | 128 | Tachycardia | Sinus | 4 | 92 | 42 |
| 116 | A | 11-08-2019 | 11 | M | 845784 | Hypothyroidism with Down syndrome with cretinism with acute bronchopneumonia with pertusis like illness with respiratory failure with umbilical hernia with underlying global developmental delay | 6.5 | 9.4 | 69 | 74.5 | 47 | 45.8 | Open & Unstable | 58 | Tachypnea | Increased | Poor | Crackles | 48 | 148 | Normal | Sinus | 3 | 76 | 48 |
| 117 | MS | 15/11/2019 | 12 | M | 850200 | Sepsis with acute meningoencephalitis with respiratory failure with shock | 10 | 9.9 | 81 | 76.9 | 47 | 46 | Open & Unstable | 54 | Tachypnea | Normal | Normal | None | 96 | 156 | Normal | Sinus | 4 | 76 | 50 |
| 118 | MT | 24/11/2019 | 9 | M | 855213 | Klclo Hypertrophic Obstructive Cardiomyopathy with Infective endocarditis with Congestive cardiac failure with severe bronchiolitis with respiratory failure with sepsis (Blood c/s outside +ve MRSA) with catecholamine resistant shock | 6 | 8.9 | 62 | 72 | 42 | 45 | Open & Stable | On Bains | Bradypnea | NA | Poor | None | 52 | 96 | Bradycardia | Sinus | 4 | 50 | 32 |
| 119 | YS | 30/11/2019 | 8 | M | 859337 | Sepsis with necrotising Pnemonia with pyopneumothorax with respiratory failure with acute Hepatitis with Hepatic encephalopathy stage-III with coagulapathy with acute kidney injury with tension pneumothorax with pulmonary hemorrhage | 7 | 8.6 | 74 | 70.6 | 45 | 44.5 | Open & Stable | 70 | Tachypnea | Increased | Normal | Crackles | 82 | 186 | Tachycardia | Sinus | 2 | 56 | 40 |
| 120 | K | 16/11/2019 | 168 | M | 830909 | Sepsis with Toxic Epidermolytic Necrolysis with Sepsis with Septic shock with Respiratory failure with Acute kidney injury | 49 | 46.4 | 162 | 154.7 | 18.7 | 19.4 | Open and unstable | 36 | Tachypnea | Increased | Differential | Stridor | 91 | 128 | Tachycardia | Sinus | 3 | 86 | 52 |
| 121 | RG | 16/11/2019 | 180 | F | 850883 | Severe Dengue Fever with Hypotensive shock with Moderate Ascitis with Bilateral Pleural effusion with Respiratory failure | 60 | 48.4 | 153 | 156.1 | 25.6 | 19.9 | Open & Unstable | 42 | Tachypnea | Increased | Poor | Crackles | 89 | 130 | Tachycardia | Sinus | 4 | 82 | 38 |
| 122 | AS | 16/11/2019 | 12 | M | 747905 | Acute Meningoencephalitis with Infantile Seizure disorder with Respiratory failure with Sepsis with Ventilator-associated pneumonia | 6.5 | 9.6 | 69 | 75.7 | 48 | 46.1 | Open & Stable | 38 | Normal | Normal | Normal | Normal | 95 | 125 | Normal | Sinus | 2 | 76 | 52 |
| 123 | R | 11-11-2019 | 144 | F | 845197 | K/c/o VSD with Severe Dengue fever with Shock with Acute Bronchopneumonia with Respiratory failure | 45 | 39.8 | 147 | 148.4 | 20.4 | 16.1 | Open and unstable | 34 | Tachypnea | Increased | Poor | Crackles | 84 | 138 | Tachycardia | Sinus | 4 | 56 | 38 |
| 124 | SL | 24/11/2019 | 84 | M | 855237 | Severe Dengue with Hypotensive Shock with Respiratory distress with Acute kidney injury | 24 | 21.9 | 102 | 120.7 | 23.07 | 15.2 | Open and unstable | 32 | Tachypnea | Increased | Normal | Crackles | 90 | 132 | Tachycardia | Sinus | 3 | 70 | 42 |
| 125 | P | 25/11/2019 | 12 | M | 856102 | K/c/o Benign Hyperphenylalanine Syndrome with Acute Bronchopneumonia with Sepsis with septic shock with respiratory failure with Post-CPR Hypoxic brain insult | 6.5 | 10.3 | 80 | 79.1 | 40 | 46.8 | Open and unstable | 62 | Tachypnea | Increased | Differential | Crackles | 77 | 142 | Normal | Sinus | 2 | 72 | 48 |
| 126 | H | 26/11/2019 | 12 | F | 856124 | Acute bronchiolitis with Respiratory distress with Myocarditis | 7 | 9.6 | 75 | 75.7 | 41 | 46.1 | Open and unstable | 72 | Tachypnea | Increased | Poor | Wheeze | 82 | 156 | Normal | Sinus | 2 | 78 | 52 |
| 127 | MK | 26/11/2019 | 72 | F | 856152 | Complicated Typhoid fever with Acute Bronchopneumonia with Thrombocytopenia with Respiratory Distress with Septic shock | 20 | 18.7 | 110 | 113.5 | 16.53 | 14.5 | Open and unstable | 40 | Tachypnea | Increased | Normal | Crackles | 89 | 124 | Tachycardia | Sinus | <2 | 76 | 42 |

| S. No. | Initial Name | BP Interpretation | CP | PP | Skin Temp. | E | V | M | Pupil Size | Reaction | Exposure Temp | Exposure Color | Primary System Involved | Oxygen | Ventilation | Invasive/ non Invasive | Reason for intubation | NIV | Inotropes Yes/No | Inotropes_Type | Central line | Fluid Bolus requirement Yes/No | Fluid Bolus requirement No. | Fluid Bolus requirement Dose | Nature of fluid | Total fluid balance_1st 24 hrs | Total fluid balance_2nd day | pH | PO2 | PCO2 | FiO2 | HCO3 | BE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | SC | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 98.4 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine | N | Y | 2 | 20 | Colloid | 25.15 | 10.58 | 7.01 | 48 | 54 | 100 | 15.5 | -18.23 |
| 95 | PS | Normal | Good | Good | Warm | 3 | 4 | 5 | 2 | RL | 101 | Icterus | GIT | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | -8.3 | -5.1 | 7.29 | 52 | 48 | 30 | 20.1 | -10.3 |
| 96 | S | Hypotension | Poor | Poor | Cool | 3 | 4 | 5 | 2 | RL | 99.8 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 2 | 20 | NS, colloid | 17.45 | 21.4 | 6.98 | 42 | 58 | 100 | Unrecordable | Unrecordable |
| 97 | A | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 3 | RL | 101.6 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Epinephrine | Y | Y | 3 | 20 | NS, colloid | 14.91 | 18.22 | 6.90 | 58 | 62 | 100 | Unrecordable | Unrecordable |
| 98 | H | Hypotension | Good | Good | Warm | 2 | 2 | 4 | 2 | RL | 99.4 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | N | NA | N | N | 0 | NA | NA | 10.23 | 5.28 | 7.28 | 56 | 38 | 35 | 21.4 | -10.4 |
| 99 | T | Hypotension | Good | Good | Warm | 2 | 2 | 4 | 3 | RL | 98.7 | Pallor | CNS | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 2.3 | 3.2 | 7.24 | 64 | 51 | 40 | 21.3 | -10.3 |
| 100 | AK | Hypotension | Good | Poor | Cool | 3 | 3 | 4 | 2 | RL | 99.4 | Pallor | Musculoskeletal | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS | 15.21 | 8.23 | 6.81 | 64 | 58 | 100 | 15.18 | -18.23 |
| 101 | SS | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101.1 | Erythematous rash | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Epinephrine | Y | Y | 3 | 20 | NS,Colloid | 21.73 | 15.24 | 7.29 | 64 | 52 | 50 | -18.1 | -16.34 |
| 102 | D | Hypotension | Good | Good | Cool | 4 | 4 | 6 | 3 | RL | 97.8 | Pallor | Renal | Y | N | NA | NA | N | N | NA | N | N | 0 | NA | NA | 51.23 | 14.61 | 7.19 | 84 | 32 | 40 | 18.1 | -12 |
| 103 | DS | Hypotension | Poor | Poor | Cool | 3 | 4 | 4 | 2 | RL | 99.4 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Epinephrine | N | Y | 3 | 20 | NS, Colloid | 18.37 | 8.4 | 7.01 | 44 | 25 | 100 | 11.2 | -15.3 |
| 104 | RP | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 102.4 | Pallor | Musculoskeletal | Y | Y | Non invasive | NA | Y | Y | Dopamine | N | Y | 2 | 10 | NS | 8.4 | -5.1 | 7.23 | 84 | 28 | 40 | -20.3 | -9.4 |
| 105 | R | Hypotension | Poor | Poor | Cool | 2 | 2 | 4 | 2 | RL | 97.2 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Epinephrine, Norepinephrine | Y | Y | 3 | 20 | NS, colloid | 12.5 | 8.22 | 7.12 | 64 | 58 | 100 | -12.2 | -15.1 |
| 106 | R | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 102.4 | Pallor | Respiratory | Y | Y | Non invasive | Extrapulmonary | Y | Y | Dopamine, Epinephrine | Y | Y | 3 | 20 | NS, colloid | 22.1 | 12.2 | 7.28 | 65 | 28 | 100 | 18.3 | -12.1 |
| 107 | AK | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 2 | RL | 99.5 | Pallor | Musculoskeletal | Y | Y | Non invasive | NA | Y | Y | Dopamine, Norepinephrine | Y | N | 2 | 20 | NS | 18.7 | 2.4 | 7.23 | 68 | 48 | 100 | -19.9 | -10.5 |
| 108 | M | Normal | Good | Good | Cool | 3 | 2 | 4 | 2 | RL | 103 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Norepinephrine | Y | Y | 2 | 10 | NS | 10.21 | 8.2 | 7.08 | 58 | 52 | 100 | -18.23 | -12.8 |
| 109 | IK | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 99.7 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Norepinephrine | Y | Y | 2 | 20 | NS | 12.56 | 5.4 | 7.30 | 84 | 42 | 100 | -20.3 | -10.2 |
| 110 | A | Hypotension | Good | Poor | Cool | 4 | 5 | 6 | 2 | RL | 101.4 | Normal | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Epinephrine | Y | Y | 3 | 20 | NS, colloid | 16.63 | 11.24 | 7.24 | 128 | 62 | 100 | -19.1 | -10.2 |
| 111 | GB | Hypotension | Poor | Poor | Cool | 2 | 1 | 4 | 3 | RL | 105 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS, colloid | 24.2 | 18.8 | 6.96 | 68 | 62 | 100 | -15.5 | -12.4 |
| 112 | A | Normal | Good | Good | Cool | 3 | 3 | 5 | 2 | RL | 98 | Pallor | Respiratory | Y | Y | Non invasive | NA | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 4.3 | 5.6 | 7.23 | 64 | 48 | 40 | -205 | -806 |
| 113 | Z | Normal | Good | Good | Warm | 4 | 5 | 6 | 2 | RL | 100.9 | Pallor | Musculoskeletal | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | N | 1 | 10 | NS | 8.6 | 4.5 | 7.30 | 68 | 52 | 40 | -23 | -6.2 |
| 114 | T | Normal | Good | Good | Warm | 3 | 3 | 5 | 2 | RL | 99.8 | Icterus | GIT | Y | N | NA | NA | N | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 5.23 | 2.1 | 7.32 | 68 | 44 | 40 | -23.2 | -8.1 |
| 115 | AK | Normal | Good | Good | Warm | 3 | 3 | 5 | 2 | RL | 98.8 | Pallor | Respiratory | Y | Y | Non invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | Y | 3 | 20 | NS, colloid | 18.81 | 8.4 | 7.24 | 58 | 52 | 100 | -21.6 | -9.4 |
| 116 | A | Normal | Good | Good | Cool | 4 | 3 | 5 | 2 | RL | 101.6 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | N | 0 | NA | NA | -1.07 | -1.3 | 7.41 | 131 | 44 | 35 | 279 | 3.3 |
| 117 | MS | Normal | Good | Poor | Cool | 2 | 2 | 4 | 3 | RL | 102 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 1 | 20 | NS | 9 | 12.5 | 7.32 | 45 | 42 | 40 | 21.2 | -4.5 |
| 118 | MT | Hypotension | Good | Poor | Cool | 3 | 1 | 4 | 2 | RL | 99.8 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 10 | NS | 5 | 79.16 | 7.21 | 112 | 69 | 100 | 24.4 | -0.3 |
| 119 | YS | Hypotension | Good | Poor | Warm | 2 | 2 | 4 | 3 | RL | 101.8 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 10 | NS | 7.24 | 18.8 | 7.11 | 31 | 60 | 100 | 9.8 | -15 |
| 120 | K | Hypotension | Good | Poor | Cool | 4 | 3 | 5 | 2 | RL | 103 | Normal | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | NS | 15.7 | 11.21 | 7.18 | 56 | 52 | 80 | 12.3 | -15.4 |
| 121 | RG | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 2 | RL | 102 | Erythematous rash | GIT | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | Colloid | 13.4 | 9.5 | 7.2 | 78 | 34 | 100 | 8.8 | 13.2 |
| 122 | AS | Normal | Good | Good | Warm | 2 | 2 | 4 | 3 | RL | 101 | Pallor | CNS | Y | Y | Invasive | Extrapulmonary | N | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | Y | 1 | 10 | NS | 5.8 | 8.1 | 7.36 | 64 | 46 | 35 | 22 | 5.6 |
| 123 | R | Hypotension | Poor | Poor | Cool | 3 | 3 | 4 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS, colloid | 21.2 | 14.3 | 7.18 | 49 | 52 | 100 | 9.2 | 22.5 |
| 124 | SL | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS | 12 | 8.8 | 7.3 | 56 | 42 | 100 | 16.8 | -11.4 |
| 125 | P | Normal | Good | Poor | Cool | 3 | 3 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 1 | 10 | NS | 8.1 | 5.6 | 7.16 | 48 | 60 | 100 | 8.3 | -16.4 |
| 126 | H | Normal | Good | Good | Warm | 4 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 6.4 | 5.8 | 7.35 | 64 | 52 | 40 | 21.2 | -8.2 |
| 127 | MK | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101.2 | Pallor | GIT | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 10 | NS | 10.9 | 8.5 | 7.28 | 56 | 58 | 100 | 16.4 | -11.23 |

| S. No. | Initial Name | Hb | TLC | DLC | TSB | DSB | Platelets | LDH | Na | K | BU | CR | OT | PT | Lactate | CRP | RBS | Vit. D | CPK-MB | Prism Score | 1 (<24 hrs) Respiratory | 1 (<24 hrs) Coagulation | 1 (<24 hrs) Liver | 1 (<24 hrs) CVH | 1 (<24 hrs) CNS | 1 (<24 hrs) Renal System | 1 (<24 hrs) Total | Day Respiratory | Day_ Coagulation | Day_ Liver | Day_ CVH | Day_ CNS | Day_ Renal System | Day_ Total | SOFA Score_Resp. rate | SOFA Score GCS | SOFA Score_SBP | SOFA Score Total | Duration of Stay | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | SC | 10.5 | 11.91 | 42/58 | 0.53 | 0.31 | 20 | NA | 141 | 3.91 | 51 | 0.38 | 668 | 423 | 4.8 | 22.41 | 64 | 18.23 | NA | 12 | 4 | 4 | 0 | 2 | 1 | 0 | 11 | 3 | 3 | 0 | 0 | 0 | 1 | 7 | 1 | 1 | 1 | 3 | 5 | Shifted |
| 95 | PS | 12.1 | 15.1 | 51/48 | 1.41 | 10.49 | 152 | NA | 138 | 402 | 48 | 0.58 | 128 | 102 | 2.8 | 81.5 | 84 | 28.4 | NA | 7 | 2 | 0 | 4 | 0 | 2 | 0 | 8 | 0 | 1 | 4 | 0 | 1 | 0 | 6 | 0 | 1 | 0 | 1 | 3 | Shifted |
| 96 | S | 11.43 | 15.41 | 74/28 | 0.71 | 0.54 | 15 | NA | 141 | 3.48 | 78 | 1.81 | 1208 | 898 | 7.4 | 224/8 | 42 | 2.19 | NA | 7 | 4 | 4 | 0 | 4 | 2 | 1 | 14 | 4 | 4 | 0 | 4 | 4 | 0 | 16 | 1 | 1 | 1 | 3 | 3 | DAMA |
| 97 | A | 12.1 | 10.3 | 88.5/4.7 | 3.29 | 3.08 | 12 | NA | 138 | 4.2 | 41 | 0.58 | 89 | 48 | >15 | 128 | 68 | 28.8 | NA | 16 | 4 | 4 | 2 | 4 | 3 | 0 | 17 | 3 | 4 | 2 | 3 | 4 | 0 | 16 | 1 | 1 | 1 | 3 | 3 | Died |
| 98 | H | 4.2 | 39.6 | 88/5.3 | 0.81 | 0.67 | 211 | NA | 133 | 3.2 | 23 | 0.39 | 25 | 9 | 2.4 | 99.38 | 102 | 16.41 | NA | 6 | 2 | 0 | 0 | 0 | 3 | 0 | 5 | 1 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 1 | 0 | 1 | 3 | Shifted |
| 99 | T | 10.3 | 10.1 | 88.8/4.1 | 0.16 | 0.14 | 354 | NA | 121 | 3.31 | 9 | 0.29 | 16 | 11 | 4.2 | 12.12 | 65 | 1.59 | NA | 6 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 1 | Shifted |
| 100 | AK | 10.9 | 9.1 | 77.2/11.3 | 0.56 | 0.47 | 114 | NA | 125 | 4.48 | 96 | 2.34 | 111 | 52 | 7.8 | 206.43 | 54 | 2.82 | 144.1 | 16 | 4 | 1 | 0 | 4 | 3 | 2 | 14 | 3 | 1 | 1 | 4 | 3 | 3 | 15 | 1 | 1 | 1 | 3 | 1 | Died |
| 101 | SS | 10.3 | 10.5 | 78.1/12.4 | 0.12 | 0.1 | 24 | NA | 136 | 3.2 | 51 | 0.49 | 156 | 56 | 4.1 | 21.4 | 76 | 24.4 | NA | 4 | 2 | 3 | 0 | 4 | 1 | 0 | 10 | 1 | 2 | 0 | 2 | 0 | 0 | 5 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 102 | D | 7.3 | 14.1 | 10.2/81.8 | 0.24 | 0.19 | 68 | NA | 143 | 3.16 | 103 | 2.24 | 41 | 40 | 4.8 | 1.06 | 98 | 8.4 | 347 | 2 | 1 | 2 | 0 | 0 | 1 | 2 | 6 | 0 | 2 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 1 | 1 | 3 | Shifted |
| 103 | DS | 15.1 | 3.2 | 50/40 | 1.21 | 0.88 | 11 | NA | 142 | 4.21 | 44 | 0.62 | 1548 | 862 | 3 | 6.97 | 62 | 10.4 | 1500 | 14 | 4 | 4 | 1 | 3 | 2 | 0 | 14 | 2 | 3 | 1 | 2 | 0 | 0 | 8 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 104 | RP | 14.2 | 7.9 | 50.9/37.2 | 1.13 | 0.93 | 18 | NA | 140 | 4.64 | 48 | 0.59 | 3977 | 1360 | 3.5 | 223 | 94 | 18.8 | NA | 9 | 1 | 4 | 0 | 2 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 15 | Shifted |
| 105 | R | 14.7 | 14.7 | 47.6/42.1 | 1.16 | 0.84 | 24 | NA | 132 | 4.95 | 46 | 0.38 | 2674 | 903 | 8.2 | 10.2 | 82 | 18.5 | NA | 23 | 4 | 3 | 0 | 4 | 3 | 0 | 14 | 3 | 4 | 0 | 2 | 3 | 0 | 12 | 1 | 1 | 1 | 3 | 8 | Shifted |
| 106 | R | 10.1 | 20.9 | 68.6/20.6 | 0.81 | 0.7 | 32 | NA | 137 | 4.73 | 47 | 0.42 | 7898 | 2164 | 4.1 | 12.2 | 48 | 16.4 | NA | 2 | 4 | 3 | 0 | 3 | 1 | 0 | 11 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 1 | 3 | 5 | Shifted |
| 107 | AK | 6.8 | 7.2 | 65.8/28.6 | 1.1 | 0.8 | 128 | NA | 145 | 2.95 | 15 | 0.12 | 33 | 18 | 3.8 | 154.21 | 123 | 2.1 | 678 | 28 | 4 | 1 | 0 | 2 | 2 | 0 | 9 | 3 | 1 | 0 | 0 | 3 | 0 | 7 | 1 | 1 | 1 | 3 | 13 | Shifted |
| 108 | M | 8.6 | 19.1 | 92.4/6.6 | 1.08 | 0.5 | 263 | NA | 148 | 3.54 | 56 | 0.26 | 207 | 264 | 5.6 | 224 | 120 | 12.4 | 124 | 8 | 4 | 0 | 0 | 4 | 3 | 0 | 11 | 3 | 0 | 0 | 2 | 3 | 0 | 8 | 1 | 1 | 1 | 3 | 7 | Died |
| 109 | IK | 9.3 | 9.7 | 94.1/3.9 | 1.6 | 1.61 | 126 | NA | 134 | 4.3 | 102 | 2.72 | 96 | 56 | 2.2 | 404.88 | 94 | 24.4 | NA | 6 | 4 | 1 | 1 | 3 | 1 | 2 | 12 | 2 | 1 | 1 | 2 | 0 | 0 | 6 | 1 | 1 | 1 | 3 | 7 | Shifted |
| 110 | A | 12.7 | 11.2 | 67.7/23.2 | 1.18 | 0.9 | 12 | NA | 132 | 3.5 | 56 | 0.28 | 256 | 126 | 3 | 112 | 74 | 16 | 2512 | 33 | 3 | 4 | 0 | 4 | 0 | 0 | 11 | 3 | 3 | 0 | 4 | 3 | 0 | 13 | 1 | 0 | 1 | 2 | 5 | Died |
| 111 | GB | 9.6 | 9.7 | 84.1/13.09 | 1.28 | 1.1 | 10 | NA | 136 | 3.2 | 84 | 1.8 | 556 | 223 | 5.8 | 286 | 46 | 1.6 | 252 | 28 | 4 | 4 | 1 | 4 | 4 | 1 | 18 | 4 | 4 | 1 | 4 | 3 | 0 | 16 | 1 | 1 | 1 | 3 | 1 | Died |
| 112 | A | 11.4 | 15.9 | 64.4/27.9 | 0.52 | 0.35 | 224 | NA | 141 | 5.05 | 37 | 0.28 | 28 | 26 | 3.1 | 2.7 | 68 | 14.26 | 23 | 16 | 2 | 0 | 0 | 3 | 2 | 0 | 7 | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 1 | 1 | 0 | 2 | 5 | Shifted |
| 113 | Z | 9.7 | 5 | 59/29.3 | 0.19 | 0.05 | 168 | NA | 141 | 3.04 | 33 | 0.25 | 20 | 24 | 2.1 | 249.48 | 92 | 144 | NA | 11 | 1 | 0 | 0 | 2 | 1 | 0 | 4 | 1 | 0 | 0 | 1 | 2 | 0 | 4 | 1 | 0 | 1 | 2 | 7 | Shifted |
| 114 | T | 12.1 | 20.9 | 68.6/20.6 | 9.86 | 6.83 | 118 | NA | 136 | 4.2 | 48 | 0.28 | 991 | 1286 | 2.4 | 224 | 40 | 14.6 | NA | 6 | 2 | 1 | 3 | 0 | 2 | 0 | 8 | 0 | 1 | 3 | 0 | 1 | 0 | 5 | 0 | 1 | 0 | 1 | 4 | Shifted |
| 115 | AK | 14.4 | 4.5 | 55.4/33.8 | 1.2 | 0.93 | 50 | NA | 139 | 4.89 | 30 | 0.49 | 393 | 155 | 3.2 | 121.6 | 84 | 17.27 | 20.31.85 | 13 | 4 | 3 | 0 | 2 | 2 | 0 | 11 | 2 | 3 | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 116 | A | 7.3 | 14.3 | 54/34 | 0.8 | 0.6 | 128 | NA | 147 | 5.28 | 67 | 0.71 | 154 | 105 | 5.8 | 12.86 | 43 | 4.1 | 37.44 | 16 | 1 | 1 | 0 | 2 | 1 | 0 | 5 | 4 | 2 | 2 | 0 | 4 | 3 | 15 | 1 | 1 | 1 | 3 | 7 | Shifted |
| 117 | MS | 8.8 | 14.5 | 60.3/29.4 | 0.16 | 0.09 | 573 | NA | 141 | 5.07 | 18 | 0.34 | 177 | 32 | 5.9 | 32.67 | 307 | 10.7 | NA | 8 | 1 | 0 | 0 | 4 | 3 | 0 | 8 | 1 | 0 | 0 | 2 | 3 | 0 | 6 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 118 | MT | 10/29 | 8.84 | 46/48 | 0.12 | 0.08 | 474 | NA | 139 | 4.14 | 47 | 0.52 | 77 | 26 | 10.5 | 9.9 | 42 | 10.24 | 132 | 17 | 3 | 0 | 0 | 3 | 3 | 0 | 9 | 4 | 0 | 0 | 4 | 4 | 0 | 12 | 1 | 1 | 1 | 3 | 7 | Died |
| 119 | YS | 7.3/23 | 24 | 81.7/13.3 | 6.27 | 5.9 | 150 | NA | 141 | 3.88 | 62 | 1.11 | 1580 | 54 | 12 | 353.2 | 20 | 19.73 | NA | 18 | 4 | 1 | 3 | 2 | 3 | 0 | 13 | 4 | 1 | 2 | 4 | 4 | 2 | 17 | 1 | 1 | 1 | 3 | 2 | Died |
| 120 | K | 7.2 | 24.4 | 78.5/19.2 | 0.71 | 0.38 | 261 | 212 | 142 | 5.1 | 128 | 2.01 | 126 | 132 | 5.2 | 264.8 | 57 | 10.24 | NA | 15 | 4 | 0 | 0 | 3 | 2 | 2 | 11 | 3 | 1 | 0 | 4 | 3 | 2 | 13 | 1 | 1 | 1 | 3 | 3 | Died |
| 121 | RG | 14.2 | 4.1 | 72.4/14.8 | 0.17 | 0.08 | 31 | 124 | 134 | 4.42 | 15 | 0.53 | 51 | 48 | 3.6 | 82 | 112 | 27.8 | NA | 23 | 3 | 3 | 0 | 4 | 2 | 0 | 12 | 3 | 4 | 1 | 3 | 3 | 0 | 14 | 1 | 1 | 1 | 3 | 3 | Died |
| 122 | AS | 9.3 | 12.3 | 71/21.4 | 0.21 | 0.15 | 285 | NA | 135 | 4.43 | 54 | 0.77 | 56 | 16 | 4.4 | 18.61 | 134 | 28.3 | NA | 6 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 5 | Shifted |
| 123 | R | 8.2 | 13.4 | 63/ 36.5 | 0.81 | 0.6 | 10 | NA | 152 | 2.3 | 86 | 1.01 | 889 | 731 | 6.2 | 152.6 | 48 | 2.1 | NA | 26 | 4 | 4 | 0 | 4 | 2 | 1 | 15 | 4 | 4 | 2 | 4 | 4 | 2 | 20 | 1 | 1 | 1 | 3 | 9 | DAMA |
| 124 | SL | 12.6 | 2.8 | 72/21 | 0.9 | 0.54 | 16 | NA | 136 | 3.51 | 108 | 1.28 | 1154 | 1208 | 3.2 | 56.7 | 102 | 28.4 | NA | 12 | 4 | 4 | 0 | 2 | 1 | 1 | 12 | 2 | 2 | 0 | 0 | 0 | 1 | 5 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 125 | P | 8.2 | 19.5 | 68.8/22.5 | 0.34 | 0.21 | 162 | NA | 132 | 3.15 | 64 | 0.83 | 156 | 68 | 5.6 | 156.4 | 68 | 12.56 | NA | 21 | 4 | 0 | 0 | 3 | 2 | 0 | 9 | 4 | 0 | 0 | 2 | 2 | 0 | 8 | 1 | 1 | 1 | 3 | 12 | Shifted |
| 126 | H | 8.6 | 11.2 | 78.6/21.2 | 0.21 | 0.11 | 256 | NA | 136 | 5.1 | 68 | 0.49 | 56 | 58 | 1.7 | 118.6 | 120 | 31.2 | NA | 7 | 3 | 0 | 0 | 2 | 1 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 2 | Shifted |
| 127 | MK | 8.7 | 7.9 | 71.9/24.7 | 1.1 | 0.87 | 102 | 1493 | 135 | 6.16 | 67 | 0.56 | 2556 | 761 | 3.8 | 182.06 | 200 | 6.04 | 40 | 7 | 4 | 1 | 0 | 3 | 1 | 0 | 9 | 2 | 0 | 0 | 2 | 1 | 0 | 5 | 1 | 1 | 1 | 3 | 12 | Shifted |

| S. No. | Initial Name | DOA | Age (Mths) | Sex | MDR No. | Main Diagnosis | Weight Actual | Weight Expected | Height Actual | Height Expected | BMI Actual | BMI Expected | Airway | RR | RR Interpretation | Efforts | A/E | Auscultation | SPO2 | HR | HR Interpretation | Rhythm | CFT | SBP | DBP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 128 | SJ | 26/11/2019 | 168 | M | 856113 | Severe Dengue with Hypotensive Shock with Respiratory distress with Severe Metabolic Acidosis with Acute kidney injury | 51 | 56.4 | 161 | 159.9 | 19.7 | 18.7 | Open and unstable | 32 | Tachypnea | Increased | Poor | Wheeze | 92 | 142 | Tachycardia | Sinus | 3 | 86 | 48 |
| 129 | HK | 27/11/2019 | 4 | M | 770822 | Acute Bronchopneumonia with Respiratory Distress. | 4 | 7 | 49 | 63.9 | 38 | 41.6 | Open and unstable | 74 | Tachypnea | Increased | Normal | None | 82 | 156 | Normal | Sinus | 2 | 70 | 48 |
| 130 | N | 29/11/2019 | 29 | F | 858040 | Post-operative case of Colectomy with End Ileostomy with sepsis with septic shock with respiratory failure | 12 | 13.1 | 90 | 91.2 | 49 | 48.8 | Open and Unstable | 56 | Tachypnea | Increased | Normal | Crackles | 67 | 144 | Tachycardia | Sinus | 3 | 58 | 40 |
| 131 | HK | 30/11/2019 | 17 | F | 858717 | K/C/O ASD with Acute Bronchopneumonia with Respiratory distress with Failure to thrive | 6.7 | 10.7 | 82 | 81.2 | 42 | 47.2 | Open and Unstable | 88 | Tachypnea | Increased | Differential | Crackles | 92 | 156 | Tachycardia | Sinus | 2 | 78 | 52 |
| 132 | AS | 02-04-2019 | 12 | M | 860801 | Acute Bronchopneumonia with Respiratory Distress. | 7.4 | 9.6 | 74 | 75.7 | 45 | 46.1 | Open and Unstable | 94 | Tachypnea | Increased | Normal | Crackles | 78 | 164 | Normal | Sinus | 3 | 72 | 46 |
| 133 | K | 12-04-2019 | 120 | M | 861442 | Severe Dengue with Hypotensive Shock with Respiratory Distress with Bilateral Pleural Effusion | 45 | 31 | 110 | 137.4 | 37.2 | 16.5 | Open and Unstable | 36 | Tachypnea | Increased | Normal | Crackles | 84 | 126 | Tachycardia | Sinus | 3 | 72 | 40 |
| 134 | K | 12-05-2019 | 180 | M | 861448 | Severe Dengue with Respiratory Distress with bilateral Pleural effusion with Ascitis with Hypotensive shock | 60 | 53.1 | 162 | 164.5 | 22.9 | 19.3 | Open and Unstable | 32 | Tachypnea | Increased | Normal | Crackles | 88 | 132 | Tachycardia | Sinus | 3 | 108 | 62 |
| 135 | NG | 12-05-2019 | 168 | M | 859411 | Severe Dengue with Hypotensive Shock with Respiarory distress with Acute Hepatitis with Acute Kidney Injury | 55 | 48.2 | 153 | 159.9 | 23.5 | 18.7 | Open and Unstable | 28 | Tachypnea | Increased | Poor | Crackles | 66 | 132 | Tachycardia | Sinus | 4 | 56 | 36 |
| 136 | J | 12-01-2019 | 192 | F | 859364 | Severe Dengue fever with Hypotensive Shock with Ascitis with Dengue Associated Encephalopathy | 50 | 49.7 | 159 | 157 | 19.76 | 20.3 | Open and stable | 16 | Normal | Normal | Normal | None | 97 | 148 | Tachycardia | Sinus | 4 | 82 | 48 |
| 137 | Y | 12-01-2019 | 8 | M | 859464 | Acute Bronchopneumonia with Respiratory Failure with Sepsis with Multiorgan Dysfunction syndrome with Myocarditis with Acute Renal failure with Acute Hepatitis with Septic Shock | 8 | 8.6 | 71 | 70.6 | 44 | 44.5 | Open and Unstable | 64 | Tachypnea | Increased | Normal | Crackles | 82 | 156 | Normal | Sinus | 3 | 50 | 32 |
| 138 | N | 12-02-2019 | 156 | F | 860080 | Severe Diabetic Ketoacidosis with first onset Diabetes Mellitus Type 1 with Severe Metabolic acidosis with Hypothyroidism | 40 | 43.6 | 149 | 153.6 | 18.01 | 19.1 | Open and Unstable | 37 | Tachypnea | Increased | Normal | None | 98 | 124 | Tachycardia | Sinus | 2 | 100 | 60 |
| 139 | MS | 12-08-2019 | 168 | M | 863559 | Pulmonary Tuberculosis with Respiratory Distress | 45 | 46.4 | 150 | 154.7 | 20 | 19.4 | Open and Unstable | 42 | Tachypnea | Increased | Poor | Crackles | 92 | 128 | Tachycardia | Sinus | 2 | 110 | 70 |
| 140 | NK | 12-08-2019 | 120 | F | 859464 | Post-operative case of Appendicectomy with Adhesions with Sepsis with Septic Shock with Post-op exploratory Laprotomy with short Stature | 25 | 31 | 110 | 137.4 | 20.66 | 16.5 | Open and Unstable | 30 | Tachypnea | Increased | Normal | None | 96 | 131 | Tachycardia | Sinus | 3 | 58 | 38 |
| 141 | J | 12-10-2019 | 120 | M | 864266 | Acute Encephalitis with Cereberitis with Respiratory Failure with Seizure disorder with Facial Nerve Palsy | 30 | 31.1 | 130 | 137.2 | 17.75 | 16.4 | Open and Unstable | 11 | Bradypnea | Poor | Normal | None | 92 | 101 | Normal | Sinus | 2 | 100 | 60 |
| 142 | AS | 12-11-2019 | 144 | F | 864889 | Severe Dengue with Hypotensive Shock with Respiratory failure with Acute Kidney Injury with Coagulopathy with Pulmonary Hemorrhage | 35 | 39.8 | 149 | 148.8 | 15.76 | 18 | Open and Unstable | 34 | Tachypnea | Increased | Normal | Crackles | 89 | 128 | Tachycardia | Sinus | 3 | 94 | 60 |
| 143 | V | 12-12-2019 | 180 | M | 864996 | End-stage Kidney disease with Uremic encephalopathy with Hypertension with Urinary Tract Infection | 30 | 48.4 | 146 | 156.1 | 14.08 | 17.8 | Open and stable | 20 | Normal | Normal | Normal | None | 98 | 92 | Normal | Sinus | 2 | 130 | 90 |
| 144 | SS | 12-12-2019 | 120 | M | 868713 | Severe Dengue with Dengue associated encephalopathy  Respiratory distress with Shock | 37 | 31.1 | 144 | 137.2 | 17.87 | 16.4 | Open and unstable | 38 | Tachypnea | Increased | Normal | Crackles | 96 | 132 | Tachycardia | Sinus | 4 | 52 | 28 |
| 145 | V | 12-12-2019 | 156 | F | 865660 | Severe Dengue with Hypotensive shock with Respiratory Faliure with Bilateral Pleural Effusion with Dengue - encephalitis | 47 | 43.6 | 151 | 152.2 | 20.6 | 18.2 | Open and unstable | 42 | Tachypnea | Increased | Normal | Crackles | 95 | 128 | Tachycardia | Sinus | >5 | 48 | 30 |
| 146 | J | 13/12/2019 | 144 | M | 866225 | Acute Viral Hepatitis -A with Hepatic Encephalopathy Grade 3 with Coagulopathy with Shock | 37 | 39 | 152 | 148.4 | 16.08 | 17.7 | Open and unstable | 26 | Tachypnea | Normal | Normal | None | 91 | 198 | Normal | Sinus | 3 | 92 | 48 |
| 147 | AK | 14/12/2019 | 48 | F | 866569 | Liver Abscess with Sepsis with Septic Shock with Coagulopathy | 16 | 16.1 | 103 | 102.7 | 50 | 49.3 | Open and Stable | 28 | Normal | Increased | Normal | None | 94 | 122 | Normal | Sinus | 3 | 76 | 42 |
| 148 | M | 17/12/2019 | 1 | M | 867883 | Acute bronchiolitis with Respiratory distress with Failure to Thrive | 5 | 4.5 | 50 | 54.7 | 42 | 37.3 | Open and Unstable | 68 | Tachypnea | Increased | Normal | Wheeze | 88 | 152 | Normal | Sinus | 2 | 70 | 40 |
| 149 | S | 23/12/2019 | 2 | M | 871092 | Acute Bronchiolitis with Respiratory Distress with Myocarditis | 3.5 | 5.6 | 54 | 58.4 | 38 | 39.1 | Open and Unstable | 84 | Tachypnea | Increased | Normal | Wheeze | 90 | 172 | Normal | Sinus | 2 | 72 | 42 |
| 150 | S | 24/12/2019 | 48 | M | 870698 | Scald Burns (75-80%) with Sepsis with Septic shock with Acute Kidney Injury with Hepatitis with Sepsis induced Encephalopathy with Respiratory failure | 16 | 16.1 | 103 | 102.7 | 51 | 49.3 | Obstructed | 17 | Bradypnea | Increased | Differential | Wheeze | 81 | 182 | Tachycardia | Sinus | >5 | 62 | 36 |

| S. No. | Initial Name | BP Interpretation | CP | PP | Skin Temp. | E | V | M | Pupil Size | Reaction | Exposure Temp | Exposure Color | Primary System Involved | Oxygen | Ventilation | Invasive/ non Invasive | Reason for intubation | NIV | Inotropes Yes/No | Inotropes_Type | Central line | Fluid Bolus requirement Yes/No | Fluid Bolus requirement No. | Fluid Bolus requirement Dose | Nature of fluid | Total fluid balance_1st 24 hrs | Total fluid balance_2nd day | pH | PO2 | PCO2 | FiO2 | HCO3 | BE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 128 | SJ | Hypotension | Good | Poor | Cool | 4 | 4 | 5 | 2 | RL | 101.6 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | NS | 14.6 | 9.7 | 7.16 | 58 | 56 | 100 | 15.5 | -12.1 |
| 129 | HK | Normal | Good | Good | Warm | 3 | 4 | 5 | 2 | RL | 103 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 6.4 | 5.8 | 7.32 | 64 | 52 | 100 | 21.4 | -8.8 |
| 130 | N | Hypotension | Good | Poor | Cool | 2 | 2 | 4 | 2 | RL | 101 | Pallor | GIT | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS | 10.2 | 12.1 | 7.12 | 68 | 59 | 100 | 16.8 | -13.3 |
| 131 | HK | Normal | Good | Good | Warm | 3 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 2.3 | 4.6 | 7.21 | 68 | 54 | 100 | 18.8 | -11.2 |
| 132 | AS | Normal | Good | Good | Warm | 3 | 4 | 5 | 2 | RL | 100.8 | Normal | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 5.6 | 4.5 | 7.31 | 68 | 56 | 35 | 20.5 | -9.3 |
| 133 | K | Hypotension | Good | Poor | Cool | 3 | 3 | 4 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | NS | 12.5 | 16.6 | 7.08 | 52 | 60 | 100 | 8.6 | -16 |
| 134 | K | Normal | Good | Good | Cool | 4 | 4 | 5 | 2 | RL | 102.8 | Normal | Respiratory | Y | Y | Non Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 10 | NS | 13.2 | 11.4 | 7.46 | 48 | 40 | 40 | 22.6 | -8.2 |
| 135 | NG | Hypotension | Poor | Poor | Cool | 3 | 3 | 4 | 2 | RL | 100.2 | Normal | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | Y | 3 | 20 | NS | 19.9 | 18.2 | 7.09 | 44 | 52 | 100 | 9.2 | -19.2 |
| 136 | J | Hypotension | Good | Poor | Cool | 3 | 3 | 5 | 3 | RL | 101 | Pallor | CNS | Y | Y | Non-Invasive | Extrapulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS | 21.23 | 12 | 7.21 | 48 | 42 | 100 | 16.4 | -10.8 |
| 137 | Y | Hypotension | Good | Poor | Cool | 3 | 4 | 4 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | NS | 13.2 | 11 | 7.01 | 92 | 58 | 100 | 8.6 | -16.4 |
| 138 | N | Normal | Good | Good | Cool | 2 | 2 | 4 | 3 | RL | 104 | Normal | Endocrinology | Y | N | NA | NA | N | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | -4.8 | -3.2 | 6.98 | 48 | 32 | 100 | UR | UR |
| 139 | MS | Normal | Good | good | warm | 4 | 4 | 5 | 2 | RL | 101 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 4.5 | 5 | 7.32 | 52 | 64 | 40 | 21.3 | -6.5 |
| 140 | NK | Hypotension | poor | poor | cool | 3 | 4 | 4 | 2 | RL | 104 | Pallor | GIT | Y | N | NA | NA | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 10 | NS | 10.2 | 12.5 | 7.1 | 58 | 56 | 100 | 17.5 | -11.3 |
| 141 | J | Normal | good | good | warm | 2 | 2 | 4 | 3 | RL | 101 | Normal | CNS | Y | Y | Invasive | Extrapulmonary | N | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 3.4 | 5.2 | 7.34 | 58 | 52 | 100 | 21.2 | -8.6 |
| 142 | AS | Normal | good | poor | cool | 4 | 4 | 5 | 2 | RL | 100.8 | Pallor | Respiratory | Y | Y | Invasive | Extrapulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS | 11.2 | 10.9 | 7.25 | 64 | 52 | 100 | 21.6 | -10.3 |
| 143 | V | Hypertension | Good | good | warm | 3 | 4 | 4 | 2 | RL | 98.4 | Normal | Renal | N | N | NA | NA | N | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 22.8 | 16.7 | 7.07 | 82 | 42 | 21 | 12.4 | -11.31 |
| 144 | SS | Hypotension | poor | poor | cool | 2 | 2 | 4 | 3 | RL | 101 | Pallor | CNS | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | COLLOID | 16.73 | 10.2 | 7.24 | 56 | 38 | 100 | 19.23 | -10.1 |
| 145 | V | Hypotension | Poor | poor | cool | 3 | 3 | 4 | 2 | RL | 101 | Erythemarous rash | Respiratory | Y | Y | Invasive | Pulmonary | Y | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 2 | 20 | NS | 13.4 | 15.5 | 7.12 | 58 | 60 | 100 | 16.4 | -14.3 |
| 146 | J | Normal | Good | good | Cool | 2 | 3 | 4 | 3 | RL | 102.6 | Pallor | GIT | Y | N | NA | NA | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | Y | 1 | 20 | NS | 12.3 | 15.5 | 7.32 | 64 | 56 | 100 | 17.2 | -8.4 |
| 147 | AK | Normal | good | poor | cool | 3 | 3 | 5 | 3 | RL | 103 | Pallor | GIT | Y | N | NA | NA | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | Y | 3 | 20 | NS | 9.8 | 12.3 | 7.1 | 62 | 54 | 100 | 9.8 | -19 |
| 148 | M | Normal | good | good | warm | 4 | 4 | 5 | 2 | RL | 100.2 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 2.3 | -7.5 | 7.14 | 57 | 45 | 40 | 18.8 | -10.1 |
| 149 | S | Normal | good | good | warm | 3 | 4 | 5 | 2 | RL | 102 | Pallor | Respiratory | Y | Y | Non Invasive | Pulmonary | Y | N | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | N | N | 0 | NA | NA | 6.7 | 5.5 | 7.27 | 56 | 58 | 45 | 18.1 | -11.27 |
| 150 | S | Hypotension | Poor | Poor | Cool | 1 | 2 | 4 | 4 | RL | 101.8 | Pallor | Respiratory | Y | Y | Invasive | Pulmonary | N | Y | Dopamine, Dobutamine, Epinephrine, Norepinephrine, Vasopressin | Y | Y | 3 | 20 | NS | 31.2 | 12.5 | 7.01 | 78 | 51 | 100 | 10.1 | -20.1 |

| S. No. | Initial Name | Hb | TLC | DLC | TSB | DSB | Platelets | LDH | Na | K | BU | CR | OT | PT | Lactate | CRP | RBS | Vit. D | CPK-MB | Prism Score | 1 (<24 hrs) Respiratory | 1 (<24 hrs) Coagulation | 1 (<24 hrs) Liver | 1 (<24 hrs) CVH | 1 (<24 hrs) CNS | 1 (<24 hrs) Renal System | 1 (<24 hrs) Total | Day Respiratory | Day_ Coagulation | Day_ Liver | Day_ CVH | Day_ CNS | Day_ Renal System | Day_ Total | SOFA Score_Resp. rate | SOFA Score GCS | SOFA Score_SBP | SOFA Score Total | Duration of Stay | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 128 | SJ | 15.2 | 20.9 | 68.8/20.6 | 0.99 | 0.86 | 8 | NA | 134 | 7.29 | 60 | 1.56 | 1162 | 80 | 4.2 | 214 | 84 | 9.04 | NA | 18 | 4 | 4 | 0 | 4 | 1 | 1 | 14 | 2 | 2 | 1 | 2 | 1 | 2 | 10 | 1 | 1 | 1 | 3 | 2 | Died |
| 129 | HK | 8.6 | 19.6 | 71.6/28.2 | 0.76 | 0.54 | 264 | NA | 136 | 3.61 | 42 | 0.38 | 156 | 128 | 3.2 | 146.6 | 106 | 18.4 | NA | 13 | 3 | 0 | 0 | 0 | 2 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 4 | Shifted |
| 130 | N | 8.9 | 22.5 | 62.5/37.3 | 0.44 | 0.31 | 132 | NA | 152 | 3.9 | 156 | 1.92 | 792 | 592 | 4.9 | 302.2 | 127 | 20.5 | NA | 15 | 3 | 1 | 0 | 4 | 3 | 1 | 12 | 2 | 1 | 0 | 2 | 1 | 1 | 7 | 1 | 1 | 1 | 3 | 5 | Shifted |
| 131 | HK | 11.8 | 19.8 | 81.5/16.7 | 0.32 | 0.27 | 218 | NA | 132 | 5.6 | 42 | 0.38 | 42 | 38 | 3.4 | 128.8 | 102 | 18.04 | NA | 13 | 4 | 0 | 0 | 0 | 2 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 4 | Shifted |
| 132 | AS | 12.2 | 5.2 | 68.1/31.5 | 0.79 | 0.69 | 261 | NA | 132 | 4.91 | 42 | 0.59 | 32 | 28 | 2.1 | 5.2 | 102 | 12.1 | NA | 9 | 3 | 0 | 0 | 0 | 2 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 7 | Shifted |
| 133 | K | 7.2 | 2.1 | 81.2/18.8 | 0.56 | 0.44 | 16 | NA | 136 | 5.8 | 56 | 0.83 | 1156 | 1280 | 5.8 | 152.8 | 64 | 2.8 | NA | 29 | 4 | 4 | 0 | 4 | 2 | 0 | 14 | 4 | 4 | 0 | 4 | 3 | 1 | 16 | 1 | 1 | 1 | 3 | 3 | Died |
| 134 | K | 10.2 | 2.4 | 68.2/30.4 | 0.45 | 0.32 | 18 | NA | 134 | 3.8 | 42 | 0.94 | 158 | 156 | 2.4 | 119.4 | 89 | 12.04 | NA | 8 | 2 | 4 | 0 | 3 | 2 | 0 | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 2 | 2 | Shifted |
| 135 | NG | 12.1 | 4.2 | 79.2/20.8 | 3.24 | 2.98 | 64 | NA | 138 | 3.56 | 126 | 2.53 | 2152 | 1895 | 3.1 | 261.8 | 68 | 26.02 | NA | 21 | 4 | 2 | 2 | 4 | 2 | 2 | 16 | 1 | 3 | 1 | 0 | 1 | 1 | 7 | 1 | 1 | 1 | 3 | 6 | Shifted |
| 136 | J | 10.8 | 1.2 | 68.4/32.6 | 0.82 | 0.76 | 62 | NA | 138 | 4.2 | 44 | 0.8 | 132 | 113 | 4.1 | 110.1 | 100 | 11.4 | NA | 11 | 1 | 2 | 0 | 4 | 2 | 0 | 9 | 1 | 3 | 0 | 2 | 1 | 0 | 7 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 137 | Y | 7.2 | 22.4 | 78.5/21 | 0.65 | 0.49 | 102 | NA | 132 | 5.6 | 124 | 1.81 | 182 | 111 | 5.6 | 258.4 | 124 | 12.4 | 512 | 30 | 4 | 1 | 0 | 4 | 2 | 1 | 12 | 4 | 2 | 2 | 4 | 3 | 1 | 16 | 1 | 1 | 1 | 3 | 2 | Died |
| 138 | N | 12.8 | 18.84 | 82.4/16.5 | 0.12 | 0.09 | 264 | NA | 132 | 3.08 | 42 | 0.82 | 34 | 38 | 8.9 | 108.2 | >500 | 10.41 | NA | 24 | 4 | 0 | 0 | 0 | 3 | 0 | 7 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 1 | 0 | 2 | 7 | Shifted |
| 139 | MS | 10.2 | 9.6 | 26.6/62.2 | 0.76 | 0.67 | 339 | NA | 141 | 3.81 | 22 | 0.3 | 34 | 15 | 2.8 | 18.5 | 126 | 32.5 | NA | 9 | 3 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 5 | Shifted |
| 140 | NK | 11.1 | 6.9 | 68.2/18.2 | 0.56 | 0.48 | 323 | NA | 133 | 4.56 | 12 | 0.33 | 15 | 8 | 5.1 | 13.95 | 118 | 13.09 | NA | 10 | 3 | 0 | 0 | 3 | 2 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 3 | Shifted |
| 141 | J | 12.4 | 9.6 | 26.6/62.8 | 0.34 | 0.28 | 339 | NA | 140 | 4.5 | 13 | 0.3 | 34 | 15 | 2.3 | 6.31 | 269 | 2.64 | NA | 12 | 4 | 0 | 0 | 0 | 3 | 0 | 7 | 4 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 1 | 0 | 1 | 28 | Shifted |
| 142 | AS | 12.7 | 1.5 | 80.2/19.6 | 0.45 | 0.32 | 26 | NA | 138 | 3.52 | 124 | 1.36 | 896 | 796 | 3.2 | 18.2 | 57 | 12.07 | NA | 21 | 4 | 3 | 0 | 4 | 1 | 1 | 13 | 4 | 4 | 0 | 4 | 3 | 2 | 17 | 1 | 1 | 1 | 3 | 2 | Died |
| 143 | V | 8.2 | 3.4 | 79/20.5 | 0.79 | 0.65 | 265 | NA | 130 | 6.5 | 264 | 3.2 | 64 | 60 | 3.1 | 15.1 | 87 | 10.1 | NA | 12 | 0 | 0 | 0 | 2 | 2 | 2 | 6 | 0 | 0 | 0 | 2 | 1 | 2 | 5 | 0 | 1 | 0 | 1 | 2 | DAMA |
| 144 | SS | 9.2 | 1.2 | 72.8/26.5 | 0.89 | 0.79 | 8 | NA | 138 | 4.2 | 64 | 0.83 | 1594 | 1149 | 3.7 | 56.81 | 67 | 11.21 | NA | 12 | 4 | 4 | 0 | 4 | 3 | 0 | 15 | 4 | 3 | 0 | 2 | 1 | 0 | 10 | 1 | 1 | 1 | 3 | 5 | Shifted |
| 145 | V | 8.2 | 22.4 | 78.6/17.4 | 0.67 | 0.59 | 68 | NA | 164 | 4.8 | 78 | 1.62 | 157 | 124 | 4.7 | 29.7 | 127 | 28.4 | NA | 18 | 4 | 2 | 0 | 4 | 2 | 1 | 13 | 4 | 3 | 0 | 4 | 3 | 1 | 15 | 1 | 1 | 1 | 3 | 38 | Shifted |
| 146 | J | 11.6 | 16.3 | 78.8/17.1 | 46 | 39.5 | 164 | NA | 132 | 4.16 | 64 | 0.83 | 2810 | 1282 | 3.7 | 158.1 | 57 | 12.02 | NA | 14 | 1 | 0 | 4 | 3 | 3 | 0 | 11 | 0 | 0 | 4 | 0 | 2 | 0 | 6 | 0 | 1 | 1 | 2 | 5 | Shifted |
| 147 | AK | 8.4 | 6.1 | 70/23 | 1.56 | 1.21 | 190 | NA | 133 | 3.74 | 69 | 0.68 | 260 | 148 | 6.7 | 306.6 | 87 | 9.2 | NA | 19 | 1 | 0 | 1 | 3 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 3 | 4 | Shifted |
| 148 | M | 10.2 | 16.6 | 62.2/36.1 | 0.65 | 0.58 | 564 | NA | 134 | 4.3 | 28 | 0.41 | 41 | 40 | 2.9 | 2.1 | 102 | 11.5 | NA | 14 | 3 | 0 | 0 | 0 | 2 | 0 | 5 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | 1 | 0 | 2 | 5 | Shifted |
| 149 | S | 12.7 | 4.7 | 68/31 | 0.71 | 0.63 | 189 | NA | 134 | 4.8 | 64 | 0.38 | 35 | 41 | 3.3 | 1.94 | 70 | 1.94 | 794 | 20 | 4 | 0 | 0 | 0 | 2 | 0 | 6 | 3 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 2 | 8 | Shifted |
| 150 | S | 11.2 | 21.4 | 80.2/ 18.9 | 0.78 | 0.56 | 204 | NA | 149 | 3.2 | 134 | 2.8 | 556 | 432 | 4.9 | 332.6 | 89 | 30.1 | 682 | 34 | 4 | 4 | 0 | 4 | 4 | 2 | 18 | 4 | 4 | 4 | 4 | 4 | 2 | 18 | 1 | 1 | 1 | 3 | 7 | Died |

| S. No. | Initial Name | DOA | Age (Mths) | Sex | MDR No. | Main Diagnosis | Weight Actual | Weight Expected | Height Actual | Height Expected | BMI Actual | BMI Expected | Airway | RR | RR Interpretation | Efforts | A/E | Auscultation | SPO2 | HR | HR Interpretation | Rhythm | CFT | SBP | DBP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| S. No. | Initial Name | BP Interpretation | CP | PP | Skin Temp. | E | V | M | Pupil Size | Reaction | Exposure Temp | Exposure Color | Primary System Involved | Oxygen | Ventilation | Invasive/ non Invasive | Reason for intubation | NIV | Inotropes Yes/No | Inotropes_Type | Central line | Fluid Bolus requirement Yes/No | Fluid Bolus requirement No. | Fluid Bolus requirement Dose | Nature of fluid | Total fluid balance_1st 24 hrs | Total fluid balance_2nd day | pH | PO2 | PCO2 | FiO2 | HCO3 | BE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| S. No. | Initial Name | Hb | TLC | DLC | TSB | DSB | Platelets | LDH | Na | K | BU | CR | OT | PT | Lactate | CRP | RBS | Vit. D | CPK-MB | Prism Score | 1 (<24 hrs) Respiratory | 1 (<24 hrs) Coagulation | 1 (<24 hrs) Liver | 1 (<24 hrs) CVH | 1 (<24 hrs) CNS | 1 (<24 hrs) Renal System | 1 (<24 hrs) Total | Day Respiratory | Day_ Coagulation | Day_ Liver | Day_ CVH | Day_ CNS | Day_ Renal System | Day_ Total | SOFA Score_Resp. rate | SOFA Score GCS | SOFA Score_SBP | SOFA Score Total | Duration of Stay | Outcome |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

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Date 9/9/19

The Principal,
**DMC, Ludhiana.**

**Subject:** Approval of Plan of Thesis.

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.05.2019 has approved the plan of thesis of **Mehak Chawla**, a student of your college for **MD Paediatrics** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

**Role of sequential organ failure assessment (sofa) score in determining the outcome of children admitted to pediatric ICU**

Supervisor
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The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,( if any).

SPSingh

Dr. S P Singh MS(Oph)
Controller of Examinations

*Note :*

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*
2. *The student may submit the thesis as per the schedule already conveyed i.e. for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

# ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU

## THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

Doctor of Medicine

in

PEDIATRICS

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES
FARIDKOT

NOVEMBER, 2018

DR. MEHAK CHAWLA

DEPARTMENT OF PEDIATRICS
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

# ABSTRACT OF PLAN OF THESIS

| | |
|---|---|
| Title | ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU |
| For the degree of | MD (Pediatrics) |
| Name of the candidate | Dr. Mehak Chawla |
| Supervisor | **Dr. Puneet Aulakh Pooni,** Professor & Head, Department of Pediatrics, DMCH, Ludhiana |
| Co-supervisor | **Dr. Deepak Bhat,** Professor, Department of Pediatrics, DMCH, Ludhiana<br>**Dr Siddharth Bhargava,** Associate Professor, Dept. of Pediatrics, DMCH, Ludhiana |
| Institution | Dayanand Medical College & Hospital, Ludhiana |
| University | Baba Farid University of Health Sciences, Faridkot |

**Introduction**: The Sequential Organ Failure Assessment Score is the scoring system to quantify the extent of organ involvement in confirmed or suspected infection and is validated to be comparable if not superior to other scoring systems used for predicting patient outcome. The SOFA Scoring system uses physical and laboratory variables representing six organ systems namely neurological, cardiovascular, renal, respiratory, hematological and hepatic system for clinical characterization of organ dysfunction.

**Aim of Study**: To assess the utility of Sequential Organ Failure Assessment (SOFA) score as a predictor of outcome in children admitted to pediatric ICU.

**Materials & Methods**: A prospective observational study. Source of data will be children aged 1 month to 18 years admitted in the department of pediatrics at Dayanand Medical College and Hospital, Ludhiana. Patients with the criteria of sepsis to be recruited and followed up for the outcome. The duration of the study will be 1 year (Jan 1, 2019 to Dec 2019).

**Clinical Significance**: Originally the SOFA Score was validated by the Third International Consensus Definitions for Sepsis and Septic Shock in Adult patients for discriminating in-hospital mortality. However it contains subscores that significantly vary with age. But if applied with age-adjusted cutoffs, it can be used for internal and external benchmarking to assess severity of illness, appropriate monitoring, proper management, family counselling in children.

**Keywords**: Multiple organ dysfunction, Sepsis Outcome, Pediatric intensive care unit, SOFA score.

| Candidate Sign | Co supervisor Sign | Co supervisor Sign | Supervisor Sign | Principal Sign |
|---|---|---|---|---|

# CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis entitled **"ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU."** exist in the Department of Pediatrics, Dayanand Medical College and Hospital, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis are genuine and is collected by the candidate herself under our supervision and guidance.

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Date : 17 Dec. 2018

# APPROVAL PROFORMA
# BY
# RESEARCH & ETHICAL COMMITTEE
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| **Department** | Pediatrics |
| **Topic of Thesis** | **ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU** |
| **Likely date of appearing in PG examination** | May, 2021 |
| **Date of enrollment** | 10th May, 2018 |
| **Name of Head of Department** | **Dr. Puneet Aulakh Pooni** |
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| 3. HOD Pathology | 3. HOD Pharmacology |
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| 5. Dean Academics | 5. HOD Medicine |
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| | 9. Secretary, IEC |
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| | 12. Principal |

**Approved: Yes / No**

**Chairperson**
**Research Committee**

Chairperson
Research Committee

**Approved: Yes / No**

**Chairperson**
**Ethics Committee**

Chairperson
Ethics Committee

# BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

## PROFORMA FOR REGISTRATION OF SUBJECTS FOR DISSERTATION

| | | |
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| 1 | NAME OF THE CANDIDATE AND ADDRESS | Dr. Mehak Chawla<br>#51-C, Moti Nagar<br>Ludhiana, Punjab |
| 2 | NAME OF THE INSTITUTE | Dayanand Medical College and Hospital, Ludhiana |
| 3 | COURSE OF STUDY AND SUBJECT | MD Pediatrics |
| 4 | DATE OF ADMISSION OF COURSE | 10th May, 2018 |
| 5 | TITLE OF THE TOPIC | ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU |

## 6. BRIEF RESUME OF THE INTENDED WORK

### 6.1 NEED FOR THE STUDY

The estimation of disease severity and probability of death are important in determining the prognosis of patients in intensive care unit (ICU).[1] It has been a consistent observation that in pediatric ICU, children usually experience multiple organ dysfunction syndromes (MODS). In ICU, mortality correlates with the number of failing organ systems and the degree of dysfunction within any given organ systems.[2] MODS, previously known as multiple organ failure (MOF) is the presence of dysregulated organ function in acutely ill patients such that homeostasis cannot be maintained without intervention.[3]

SOFA Score is a scoring system that quantifies the extent of organ damage and grades the severity of organ dysfunction. SOFA Score was created in a consensus meeting of European Society of Intensive Care Medicine in 1994 and revised in 1996.[4] The Third International Consensus Definitions for Sepsis and Septic shock (Sepsis-3) uses the SOFA score to assess the severity of illness in adult patients with suspected infection.[5]

The pSOFA score was developed by adapting the original SOFA score with age-adjusted cutoffs for the cardiovascular and renal systems and by expanding the respiratory criteria to include noninvasive surrogates of lung injury.[6] The scoring systems used for pediatric organ dysfunction quantification include PRISM III, PIM2, PEMOD, PELOD, TISS and SOFA scores. TISS and SOFA score had the highest discrimination ability (AUC: 0.81, 0.765, respectively).[7]

One of the major limitations of the SOFA score is that it was developed for adult patients but contains measures that significantly vary with age, which makes it unsuitable for children.[8] In order to adapt and validate a pediatric version of SOFA (pSOFA) in critically ill children, a retrospective observational study including all children from 1 month to 21 years in a 20 bed, tertiary care PICU was studied over seven and half years, by obtaining date from electronic health record base. Age adjusted cut off were taken. Daily pSOFA scores were calculated from admission until day 28 of hospitalization, discharge, or death (whichever came first). Three additional pediatric organ dysfunction scores were calculated for comparison. In more than 6000 patients, with 8711 episodes were included in the study. The maximum pSOFA score had excellent discrimination for in-hospital mortality, with an area under the curve of 0.94 (95% CI, 0.92-0.95). The pSOFA score had a similar or better performance than other pediatric organ dysfunction scores.

Patients with sepsis were more likely to die than patients with confirmed or suspected infection but no sepsis. Mortality was highest in patients with septic shock.

The pSOFA score was adapted and validated with age-adjusted variables in critically ill children. This study was the first assessment of the Sepsis-3 definitions in critically ill children.

However, no prospective study of use of SOFA sore in children is as yet available. Therefore this study is planned to assess the SOFA score prospectively and adapt it in the pediatric patients using age- adjusted cut-offs.

## 6.2 REVIEW OF LITERATURE

Sepsis is a multifaceted host response to an infecting pathogen that may be significantly amplified by endogenous factors.[9,10] Sepsis is a syndrome of physiologic, pathologic, and biochemical abnormalities induced by infection and it accounts to be the leading cause of mortality and critical illness worldwide. Also those who survive Sepsis often have long-term physical, psychological, and cognitive disabilities with significant health care and social implications.[11] The 1991 Consensus Conference developed definitions to define Sepsis that focused on the then prevailing view that sepsis resulted from Systemic Inflammatory Response Syndrome (SIRS) that is an inflammatory state of host in response to an infectious or non-infectious insult.[12] Therefore initially sepsis was conceptualized to be the presence of infection with at least 2 of the following 4 SIRS criteria:

1.Temperature > 380 C or < 360 C

2.Heart Rate > 90/ min

3.Respiratory Rate > 20/min or PaCO2 12000/ mm3 or < 4000/mm3 or >10% immature bands

However, the validity of the SIRS as a descriptor of Sepsis has been challenged. Sepsis is now recognized to involve early activation of both pro- and anti-inflammatory responses,[13] along with major modifications in nonimmunologic pathways such as cardiovascular, neuronal, autonomic, hormonal, bioenergetic, metabolic, and coagulation, all of which have prognostic significance.[14-16] Organ dysfunction, even when severe, is not associated with substantial cell death. The SIRS Criteria are present in many hospitalized patients including those who never develop infection or never

have any adverse outcome. Hence the role of the SIRS criteria to define sepsis is now obsolete.

The Third International Sepsis Consensus Definitions Task Force defines Sepsis as life-threatening organ dysfunction caused by dysregulated host response to infection.[17] Sepsis is the primary cause of death from infection, especially if not recognized and treated promptly. Recognition of sepsis mandates urgent attention.

Septic Shock is a subset of sepsis in which underlying cellular and circulatory abnormalities substantially increase the risk of mortality. The 2001 task force definitions described septic shock as "a state of acute circulatory failure."[18] Such patients can be identified with clinical construct of Sepsis along with

- persisting hypotension requiring Vasopressors to maintain MAP ≥ 65 mmHg
- Serum Lactate level >2 mmol/L or >18 mg/dL despite adequate volume resuscitation.

The role of Lactate in sepsis: Lactate is a well-studied prognostic marker in patients with sepsis. Hyperlactatemia is a reasonable marker of illness severity, with higher levels predictive of higher mortality.[19] Studies in hypoxia, low flow states and early septic shock have provided grounds to conceptualize hyperlactatemia ie. arterial or venous blood lactate >2 mmol/L or >18 mg/dL is a manifestation of inadequate oxygen delivery and anaerobic metabolism.[20]

For clinical operationalization, Organ dysfunction can be represented by the Sequential Organ Failure Assessment (SOFA) Score. The SOFA Scoring system uses physical and laboratory variables representing six organ systems

namely neurological, cardiovascular, renal, respiratory, hematological and hepatic system for clinical characterization of organ dysfunction.

- The baseline SOFA Score can be assumed to be zero in patients not known to have pre-existing organ dysfunction.
- A SOFA Score ≥2 reflects an overall mortality risk of approximately 10% in general hospital population with suspected infection. [21]

Even patients with modest dysfunction can deteriorate rapidly, emphasizing the need for prompt identification and intervention.

Components of SOFA score are shown in fig 1.

**THE SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE**

| SYSTEM | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| **Respiration** PaO2/FIO2 mm Hg (kPa) | ≥400 (53.3) | <400 (53.3) | <300 (40) | <200 (26.7) with respiratory support | <100 (13.3) with respiratory support |
| **Coagulation** Platelets ×10³/uL | ≥150 | <150 | <100 | <50 | <20 |
| **Liver** Bilirubin mg/dL (umol/L) | <1.2 (20) | 1.2-1.9 (20-32) | 2.0-5.9 (33-101) | 6.0-11.9 (102-204) | >12.0 (204) |
| **Cardiovascular** | MAP ≥70mmHg | MAP <70mmHg | Dopamine <5 or Dobutamine (any dose) | Dopamine 5.1 - 15 or Epinephrine ≤ 0.1 or Norepinephrine ≤ 0.1 | Dopamine >15 or Epinephrine >0.1 or Norepinephrine >0.1 |
| **CNS** GCS Score | 15 | 13-14 | 10-12 | 6-9 | <6 |
| **Renal Creatinine, mg/dl (umol/L) Urine Output, ml/d** | <1.2 (110) | 1.2 -1.9 (110-170) | 2.0 - 3.4 (171-299) | 3.5 - 4.9 (300 -440) <500 | > 5.0 (440) <200 |
| Catecholamine Doses = ug/kg/min for at least 1hr | | | | | |

Fig 1: Components of SOFA score in adults

The quick SOFA (qSOFA) Score is a bedside prompt that identifies the patients with suspected infection who are at greater risk for a poor outcome outside the intensive care unit (ICU)

- Glasgow coma scale <15
- Respiratory rate ≥22 / min

- Systolic Blood Pressure ≤ 100 mmHg

The score ranges from 0 to 3 points. The presence of 2 or more qSOFA points near the onset of infection is associated with poor prognosis in terms of prolonged hospital stay and mortality.

Only one retrospective study of use of SOFA score in pediatric sepsis is available and there is need for more prospective studies so as to diagnose sepsis at admission, hence starting therapy on time to decrease the mortality.

## 6.3 AIMS AND OBJECTIVES OF THE STUDY

To assess the utility of Sequential Organ Failure Assessment (SOFA) Score as a predictor of outcome in children admitted to pediatric ICU.

## 7.0 MATERIALS AND METHODS

The SOFA scoring system consists of physical and laboratory variables representing six organ systems namely neurological, cardiovascular, renal, respiratory, hematological and hepatic system. After recruitment in the study, patients will be followed until they are discharged from PICU or deceased. Initial SOFA score will be calculated within 24 hours of admission and then calculated after 72 hours.

Table 1: Sofa score according to European Society of Intensive Care Medicine.

| SOFA score | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| **Respiration** | | | | | |
| $PaO_2/FIO_2$ (mm Hg) | >400 | <400 | <300 | <200 | <100 |
| $SaO_2/FIO_2$ | | 221-301 | 142-220 | 67-141 | <67 |
| **Coagulation** | | | | | |
| Platelets $10^3/mm^3$ | >150 | <150 | <100 | <50 | <20 |
| **Liver** | | | | | |
| Bilirubin (mg/dL) | <1.2 | 1.2-1.9 | 2.0-5.9 | 6.0-11.9 | >12.0 |
| **Cardiovascular** | | | | | |
| Hypotension | No hypotension | MAP <70 | Dopamine <=5 or dobutamine (any) | Dopamine >5 or norepinephrine <=0.1 | Dopamine >15 or norepinephrine >0.1 |
| **CNS** | | | | | |
| Glasgow coma score | 15 | 13-14 | 10-12 | 6-9 | <6 |
| **Renal** | | | | | |
| Creatinine (mg/dL) or urine output (mL/d) | <1.2 | 1.2-1.9 | 2.0-3.4 | 3.5-4.9 or <500 | >5.0 or <200 |

It will be a prospective study of 1 year. Demographic data, investigations and outcome of children admitted with suspected or confirmed infection will be entered in proforma and data will be analyzed to study the etiology and factors affecting outcome.

## 7.1 SOURCE OF DATA

Source of data will be children 1 month to 18 years of age admitted with criteria of sepsis to Pediatric ICU, Dayanand Medical College and Hospital, Ludhiana.

## 7.2 METHOD OF COLLECTION OF DATA

It will be a prospective study of 1 year. All admissions with criteria for sepsis will be accounted. Patients will be evaluated within the day of admission and on follow up using the SOFA Score. Demographic data, history, investigations and outcome of children admitted with suspected or confirmed infection will be entered in proforma and data will be analyzed to study the etiology and factors affecting outcome.

**INCLUSION CRITERIA**

Children between 1 month to 18 years of age admitted in Pediatric ICU meeting the criteria of sepsis will be accounted.

**EXCLUSION CRITERIA**

a) Age < 1 month or >18 years

b) Duration of stay <24 hours in pediatric ICU

c) Denial of consent for participation in the study.

d) Children who did not undergo sufficient diagnostic laboratory tests in accordance with SOFA score

**STUDY TYPE**: Prospective observational study

**DURATION OF STUDY**: 12 months

**OUTCOME**: The outcome of the study will be assessed on the basis of length of hospital stay, morbidity and mortality

**STATISTICAL ANALYSIS**

The data collected in respect of various variables will be statistically analyzed and descriptive statistics will be reported as mean+/- SD and count as n (%). Student t test, Mann Whitney test, ANOVA and chi square test will be used. P value <0.05 will be significant. SPSS version 21 statistical software will be used to analyse the data.

**7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY**

No

**7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF?**

Yes, attached alongwith.

## 8. LIST OF REFERENCES


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## PROFORMA

S.NO- MRD no:

NAME: AGE: SEX:

DATE OF ADMISSION:

ADDRESS:

PROVISIONAL DIAGNOSIS:

FINAL DIAGNOSIS:

CHIEF COMPLAINTS: Fever- Duration: Grade:

ANTHROPOMETRY :

| | ACTUAL | EXPECTED | REMARKS |
|---|---|---|---|
| WEIGHT | | | |
| HEIGHT | | | |
| BMI | | | |

**Signature of Candidate**

**Signature of Supervisor**

PRIMARY ASSESSMENT:

AIRWAY : open & stable open & unstable obstructed

BREATHING:

RR:

Efforts : Normal / Poor / Increased / Acidotic

A/E : Normal / Poor / Differential

Auscultation : None / Stridor / Wheeze / Crackles

$sPO_2$ :

CIRCULATION : HR : Rhythm: CFT: BP:

CP : good / poor PP : good / poor Skin temp : warm / cool

DISABILITY : GCS : E M V Pupil size: Reaction:

EXPOSURE : Temp : Color : normal / pallor / cyanosis / icterus

GPE:

SYSTEMIC EXAM:
Chest:

CVS:

CNS:

P/A:

PRIMARY SYSTEM INVOLVED ( FOCUS) RESPIRATORY / CVS / CNS / GIT / RENAL

**Signature of Candidate** **Signature of Supervisor**

OXYGEN: YES / NO

- NRM / FACE MASK / NASAL PRONGS

VENTILATION: YES / NO

- INVASIVE / NON INVASIVE

REASON FOR INTUBATION: PULMONARY / EXTRAPULMONARY

- DURATION OF INTUBATION:

NIV:

- DURATION OF NIV :

INOTROPES: YES / NO

- TYPE: DOPAMINE / DOBUTAMINE/ EPINEPHRINE/NOREPINEPHRINE

CENTRAL LINE:

FLUID BOLUS REQUIREMENTS: yes/no, one/two/three/more each bolus 5/10/20 ml/kg

Nature of fluid: NS/RL/Colloid/blood/other

Total fluid balance in ml/kg: 1st 24 hours 2nd day

**Signature of Candidate** **Signature of Supervisor**

ANTIBIOTICS:

| Date | Name | Route | Dose | Duration |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

INVESTIGATIONS:

| | | |
|---|---|---|
| pH | $PO_2$ | $PCO_2$ |
| $FiO_2$ | $HCO_3$ | BE |

| | | |
|---|---|---|
| Hb | Na | Lactate |
| TLC | K | CRP |
| DLC | BU | RBS |
| Platelets | CR | Vitamin D |
| | OT/PT | |

**Signature of Candidate** **Signature of Supervisor**

Special Investigations : including cultures

Imaging:

PRISM Score :

**Signature of Candidate**

**Signature of Supervisor**

| Parameters | | I (< 24 hrs) | | day | | |
|---|---|---|---|---|---|---|
| Respiratory : $PaO_2$ / $FaO_2$ mmHg | 0. >400<br>1. ≤400<br>2. ≤300<br>3. ≤200<br>4. ≤100 | | | | | |
| Coagulation : Platelets x $10^3/\mu L$ | 0. >150<br>1. ≤ 150<br>2. ≤ 100<br>3. ≤ 50<br>4. ≤ 20 | | | | | |
| Liver : Bilirubin, mg/dl | 0. >1.2<br>1. 1.2 -1.9<br>2. 2.0 -5.9<br>3. 6.0 -11.9<br>4. >12 | | | | | |
| Cardiovascular : Hypotension (as per age) | 0. No hypotension<br>1. mean arterial pressure <70 mmHg<br>2. Dop ≤5 or Dob (any dose)<br>3. Dob >5 , epi ≤0.1 or norepi ≤0.1<br>4.Dop >15, epi >0.1 or norepi >0.1 | | | | | |
| Central Nervous system: Glasgow coma scale | 0. 15<br>1. 13-14<br>2. 10-12<br>3. 6-9<br>4. <6 | | | | | |
| Renal system: Creatinine (mg/dl) or urine output (ml/dl) | 0. <1.2<br>1. 1.2- 1.9<br>2. 2.0 -3.4<br>3. 3.5 -4.9 or <500<br>4. >5.0 or <200 | | | | | |
| Total SOFA Score : | | | | | | |

**Signature of Candidate**

**Signature of Supervisor**

**Quick sequential Organ failure assessment (SOFA) score:**

| qSOFA (Quick SOFA) Criteria | Score |
|---|---|
| Respiratory Rate ≥22/min | |
| Change in Mental Status (GCS <15) | |
| Systolic Blood Pressure ≤ 100 mmHg | |

TOTAL q SOFA Score :

DURATION OF STAY:

OUTCOME: DIED/ SHIFTED / DAMA

**Signature of Candidate**

**Signature of Supervisor**

## INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o,

S/o..... .....am willing to participate in the study **"ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of thesis is being carried out. I am free to opt out the study any time without assigning any reason.

..... .....

Signature of the Witness Signature of the patient

Name:

**Signature of Supervisor** **Signature of Candidate**

# मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

# ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫ਼ਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ _____

**"ROLE OF SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) SCORE IN DETERMINING THE OUTCOME OF CHILDREN ADMITTED TO PEDIATRIC ICU"** ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ। ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ। ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ _____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ